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DRAFT

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REGISTRATION

CenturyLink Center Floor 2, Grand Ballroom Foyer

Sunday, March 11, 3:00 PM – 5:00 PM

Monday, March 12, 7:00 AM – 6:00 PM

Tuesday, March 13, 7:00 AM – 4:00 PM

Wednesday, March 14, 7:00 AM – 11:00 AM

HOTEL INFORMATION

Hilton Omaha – Headquarters

1001 Cass St.

Omaha, NE 68154

402-998-3400

Omaha Marriott Downtown at the Capitol District

222 N. 10th St.

Omaha, NE 68102

402-807-8000

Courtyard by Marriott Omaha Downtown – Student/Overflow

101 South 10th St.

Omaha, NE 68102

402-346-2200

SPEAKER UPLOAD ROOM

CenturyLink Center, 215

Monday, March 12, 7:30 AM – 5:00 PM

Tuesday, March 13, 7:30 AM – 5:00 PM

Wednesday, March 14, 7:30 AM – 12:00 PM

JOB RESOURCE CENTER

The traditional Job Resource Center and the Cyber Café is located on Floor 2 in the Grand Ballroom Foyer of the CenturyLink Center.

Students, graduates and experienced professionals are encouraged to post résumés at the Job Resource Center. Professionals from hundreds of companies, universities and governmental agencies are represented each year at the Midwest Meeting. Prospective employees are requested to bring 25 to 50 copies of their (two-page) résumés.

Employers from industry, academia and government are encouraged to post position announcements. Employers are asked to bring 25 to 50 copies of all position announcements.

Job descriptions and résumés can be posted at the Job Resource Center in Omaha beginning at 7:00 AM on Monday, March 13, 2017.

ARPAS CONTINUING EDUCATION UNITS

The 2017 Midwest Meeting has been approved for up to 16 continuing education units (CEUs) for the American Registry of Professional Animal Scientists (ARPAS) certification requirements. ARPAS exams are available Tuesday, March 13 at 7:30 AM. Stop by the ARPAS Booth to sign up.

ASAS CAREER CENTER

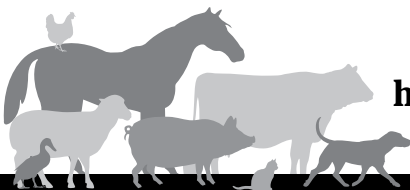
The ASAS Career Center is the premier electronic recruitment resource for the animal science industry. This site is a great tool that offers benefits to both employers and job seekers alike.

EMPLOYERS

Here, employers and recruiters can access the most qualified talent pool with relevant work experience to fulfill staffing needs.

JOB SEEKERS

This site offers job seekers the opportunity to send information out to potential employers and search job postings.



<http://careers.asas.org/>

SCHEDULE OF EVENTS

All rooms are at the CenturyLink Convention Center in Omaha, NE unless otherwise noted.

*Schedule note: Presenting authors of competition posters are required to stand by their designated screen 15 minutes before the start of Poster Sessions I and II. If you are presenting a competition poster, you may be asked to remain by your poster longer than the scheduled hour listed in this program. Please plan accordingly.

MONDAY, MARCH 12, 2018

- 8:00 AM Gary Allee Symposium: Science in Practice – Revisited, Grand Ballroom South
- 10:00 AM Judges' Brunch, Hilton-Omaha, Blackstone A
- 12:00 PM Digestive Physiology of Pigs Lecture and Lunch
Featuring Dr. Theodoor Niewold from KU Leuven, Grand Ballroom North
- 12:45 PM *Poster–Session I, Grand Ballroom Foyer
- 1:00 PM David Baker Symposium: Ideal Protein and Amino Acid Nutrition of Pigs, Grand Ballroom South
- 1:45 PM Graduate Student Oral Competition – MS I, 201
- 1:45 PM Graduate Student Oral Competition – MS II, 202
- 1:45 PM Undergraduate Student Oral Competition I, 212
- 1:45 PM Undergraduate Student Oral Competition II, 213
- 1:45 PM Graduate Student Oral Competition – Ph.D. I, 214
- 1:45 PM Graduate Student Oral Competition – Ph.D. II, 216
- 3:00 PM Ruminant Management Symposium: Accounting for Genetic Potential in Animal Research: Challenges and Opportunities, 205/206
- 5:00 PM *Poster Session II, Grand Ballroom Foyer
- 5:45 PM Recognition of Young Scholar Winners, Grand Ballroom North
- 6:15 PM Poster Reception, Grand Ballroom Foyer
- 6:15 PM Poster Session III, Grand Ballroom Foyer
- 7:00 PM AQ Quiz Bowl Finals and Awards Presentation, Grand Ballroom North
- 7:30 PM Graduate Student Mixer, Upstream Brewing Company

TUESDAY, MARCH 13, 2018

- 7:30 AM Poster Session IV, Grand Ballroom Foyer
- 7:30 AM Graduate Student Breakfast and Learn, Hilton Omaha, Saint Nicholas
Featuring – Dr. Ronnie Green, University of Nebraska-Lincoln
- 8:30 AM David Schingoethe Symposium: Confronting Management
Challenges Associated with Increasing Automation on Daries,
210/211
- 8:30 AM Teaching Symposium: High-Impact Educational Practices, 201
- 8:30 AM Physiology Symposium: Environmental Influences during Pregnancy,
205/206
- 8:30 AM Growth, Development, Muscle Biology and Meat Science
Symposium: Emerging Meat-Specific Research Needs, 216
- 8:30 AM Nonruminant Nutrition Symposium: Oxidative Stress in the Context
of Animal Production, Grand Ballroom South
- 8:30 AM Ruminant Nutrition Symposium: Interaction of Nutrition,
Immunology and Gut Integrity: Impacts on Cattle Health and
Performance, 203/204
- 8:30 AM Swine Young Scholar, 212
- 8:30 AM Nonruminant Nutrition I: Minerals, 213
- 8:30 AM Nonruminant Nutrition II: Feed Processing and Ingredients, 214
- 8:30 AM Ruminant Nutrition I: Growing Cattle, 202
- 8:30 AM Physiology I: Cattle, 207
- 9:35 AM Extension – Swine Symposium, 212
- 12:50 PM Bentley Lecture and Lunch, Grand Ballroom North
Featuring – Dr. Theo van Kempen, Trouw Nutrition and North
Carolina State University
- 12:45 PM Poster Session V, Grand Ballroom Foyer
- 1:20 PM Klopfenstein Lecture, 203/204
Featuring – Dr. Trey Patterson, Padlock Ranch Company
- 1:45 PM Extension – Beef/Small Ruminant Symposium, 203/204
- 1:45 PM Equine Symposium: Innovative Approaches to Reach Equine
Audiences, 207
- 1:45 PM Breeding and Genetics Symposium: Host Vs. Microbiome: Is it
Genetic, Environmental, or GxE?, 205/206
- 1:45 PM Extension – Dairy Symposium: Feeding Dairy Calves and Heifers in
the Midwest, 210/211
- 1:45 PM Animal Behavior, Housing and Welfare Symposium: Managing Heat
Stress, Swine Welfare and Welfare Measurement, Grand Ballroom
South
- 1:45 PM Extension – Swine, 201
- 1:45 PM Ruminant Nutrition II
Feedlot Nutrition and Management, 202

-
- 1:45 PM Growth, Development, Muscle Biology and Meat Science, 216
 - 1:45 PM Nonruminant Nutrition III: Feed Additives I: Nursery, 212
 - 1:45 PM Nonruminant Nutrition IV: Amino Acid Requirements, 214
 - 1:45 PM Nonruminant Nutrition V: Fiber/Enzymes, 213
 - 5:00 PM Poster Session VI, Grand Ballroom Foyer
 - 6:00 PM Business Meeting and Awards Program, Grand Ballroom North
 - 7:00 PM Awards Reception, Grand Ballroom North

WEDNESDAY, MARCH 14, 2018

- 7:30 AM Poster Session VII, Grand Ballroom Foyer
- 8:30 AM Harlan Ritchie Symposium, 203/204
- 8:30 AM Odor and Nutrient Management Symposium: Environmental Quality in Livestock Production, 205/206
- 8:30 AM Breeding and Genetics: NC1201 Symposium, 210/211
- 8:30 AM Animal Breeding and Genetics, 202
- 8:30 AM Animal Behavior, Housing and Well-Being, 201
- 8:30 AM Physiology II: Reproductive and Digestive Physiology, 212
- 8:30 AM Nonruminant Nutrition VI: Feed Additives II, 214
- 8:30 AM Nonruminant Nutrition VII: General Topics, 213
- 8:30 AM Ruminant Nutrition III: Dairy, 207
- 8:30 AM Ruminant Nutrition IV: General Topics, 216

CAMERA, VIDEO CAMERA, AND CELL PHONE POLICY

Use of cameras, video cameras, and cell phones (for calls or as cameras) is prohibited during oral and poster presentations to minimize disruption and unauthorized dissemination of data. Violators may be asked to leave the session/conference. Exceptions to this policy must be approved in advance by the Midwest ASAS Program Secretary.

POSTER SCHEDULE

All posters are presented as ePosters. This allows all posters to be on display for the duration of the meeting and available to all attendees to view at their leisure.

The posters are divided into six poster sessions to allow greater access to presenters. The list of poster sessions with presentation times appears below. All poster sessions take place in the Grand Ballroom Foyer.

Competition Posters

Presenting authors of Competition Posters are required to stand by their designated screen 15 minutes prior to the start of the General Poster Session.

*Competition Posters in Session I should arrive at 12:30 PM.

**Competition Posters in Session II should arrive at 4:45 PM.

If you are presenting a competition poster, you may be asked to remain by your poster longer than the scheduled hour listed in this program. Please plan accordingly.

MONDAY, MARCH 12, 2018

Poster Session I – Authors present 12:45 PM – 1:30 PM

*Graduate Student Poster Competition – Ph.D.

*Graduate Student Poster Competition – M.S. I

*Undergraduate Student Poster Competition I

Nonruminant Nutrition I: Amino Acid Requirements

Poster Session II – Authors present 5:00 PM – 5:45 PM

**Graduate Student Poster Competition – M.S. II

**Undergraduate Student Poster Competition II

Nonruminant Nutrition II: Feed Additives I: Nursery I

Poster Session III – Authors present 6:15 PM – 7:00 PM

Extension – Beef/Small Ruminant

Extension – Dairy

Extension – Swine I

Nonruminant Nutrition III: Feed Additives II: Nursery II

Nonruminant Nutrition IV: Minerals

TUESDAY, MARCH 13, 2018

Poster Session IV – Authors present 7:30 AM – 8:15 AM

Equine

Extension – Swine II

Nonruminant Nutrition V: Feed Additives III: Mycotoxins

Teaching I

Poster Session V – Authors present 12:45 PM – 1:30 PM
Animal Behavior, Housing, and Well-Being
Animal Breeding and Genetics
Growth, Development, Muscle Biology and Meat Science I
Nonruminant Nutrition VI: Enzymes
Physiology I

Poster Session VI – Authors present 5:00 PM – 5:45 PM
Growth, Development, Muscle Biology and Meat Science II
Nonruminant Nutrition VII: Feed Processing and Ingredients
Ruminant Nutrition I

WEDNESDAY, MARCH 14, 2018

Poster Session VII – Authors present 7:30 AM – 8:15 AM
Nonruminant Nutrition VIII: Ingredients and General
Physiology II
Ruminant Nutrition II
Teaching II

EPOSTER HELP DESK HOURS

CenturyLink Center, Grand Ballroom Foyer
Monday, March 12, 9:00 AM – 7:15 PM
Tuesday, March 13, 7:00 AM – 5:45 PM
Wednesday, March 14, 7:00 AM – 12:30 PM

SPECIAL EVENTS

Digestive Physiology of Pigs Lecture and Lunch

Monday, March 12 • 12:00 PM • Grand Ballroom North

Why effective alternatives to AGP can only be based on an anti-inflammatory mechanism

Dr. Theodoor Niewold, KU Leuven

AGP were supposed to work based on an antibiotic mechanism, but without conclusive evidence. Growth is reciprocal to inflammation, so it is evident that the observed effects must be based on an anti-inflammatory mechanism. This has been confirmed by omics techniques, and by using simple non-invasive biomarkers in vivo. It is now very easy to select effective alternatives to AGP. *Sponsored by: DPP-NA. Registration is required; attendance is limited to first 400 registrants. Registration is \$15.00.*

Recognition of Young Scholar Winners

Monday, March 12 • 5:45 PM • Grand Ballroom North

Join us as we recognize the 2018 Young Scholar Winners. Young Scholars must be in attendance to receive their award.

Evening Poster Reception

Monday, March 12 • 6:15 PM • Grand Ballroom Foyer

Join us for a special evening poster session and reception after the recognition of Young Scholar winners.

ASAS Academic Quadrathlon Quiz Bowl Finals and Award Presentation

Monday, March 12 • 7:00 PM • Grand Ballroom North

ASAS is excited to offer our undergraduates the chance to compete in the Midwestern Section Academic Quadrathlon (AQ). The AQ competition concludes with the Quiz Bowl final Monday night as the final two teams compete for the honor of representing the Midwestern Section at the National AQ in Vancouver. Following the Quiz Bowl, AQ Awards will be presented. Please come and support our undergraduates. *Sponsored by: Agri-King, ASAS Foundation, and University of Nebraska-Lincoln*

Graduate Student Mixer

Monday, March 12 • 7:30 PM • Upstream Brewing Company

Join your fellow graduate students at a mixer for all to enjoy. This event will provide an opportunity to catch up with old friends and make new ones. *Preregistration is highly recommended; all students are welcome. Registration fee is \$10.00.*

Graduate Student Breakfast and Learn

Tuesday, March 13 • 7:30 AM • Hilton Omaha, Saint Nicholas

Dr. Ronnie Green, University of Nebraska–Lincoln

Dr. Ronnie Green, was raised on a mixed beef, dairy, and cropping farm in southwestern Virginia. He received B.S. and M.S. degrees in animal science from Virginia Tech and Colorado State University, respectively. His doctoral program was completed jointly at the University of Nebraska–Lincoln and the USDA-ARS U.S. Meat Animal Research Center. Dr. Green is an internationally recognized authority in animal genetics. He is a past-president of the American Society of Animal Science (ASAS) and has served in numerous of leadership positions throughout animal agriculture. Dr. Green will be speaking on the topic of “Making Career Decisions Between Academia and Industry.” *Sponsored by: Zoetis, Zinpro, ARPAS and ASAS. Preregistration is required. Registration is \$10.00.*

Klopfenstein Lecture

Tuesday, March 13 • 1:20 PM • 203/204

Building profitable management systems for young beef females

Dr. Trey Patterson, Padlock Ranch Company, Ranchester, WY

The Klopfenstein Student Excellence Scholarship Fund was established in honor of Dr. Terry Klopfenstein. Klopfenstein is a highly respected and productive scientist and teacher who has given the livestock industry outstanding leadership. The Klopfenstein Student Excellence Scholarship Fund is used to fund the Klopfenstein Lectureship speaker. Speakers are selected from internationally recognized experts in beef cattle nutrition, forage utilization, coproduct usage in beef cattle diets, and beef cattle production systems.

Bentley Lecture and Lunch

Tuesday, March 13 • 12:50 PM • Grand Ballroom North

Vitamin Nutrition in the 21st Century

Dr. Theo van Kempen, Trouw Nutrition and North Carolina State University

Vitamin nutrition is often an afterthought in modern production systems. Few nutritionists have genuinely studied the subject, and even fewer stay abreast of recent developments. Nevertheless, there is no lack of opinions on vitamin levels. The proper form, though, receives limited attention. The cost of premixes does affect profitability; and by adjusting level or form, effects can be tweaked. Hence, there is still room to learn and improve. *Sponsored by Bentley Appreciation Club. Registration is required; attendance is limited to first 400 registrants. Registration is \$15.00.*

Business Meeting and Awards Program

Tuesday, March 13 • 6:00 PM • Grand Ballroom North

Please join the ASAS Midwestern Section / ADSA Midwest Branch Joint Board this evening for the annual business meeting and 2018 Awards Program.

Awards Reception

Tuesday, March 13 • 7:00 PM • Grand Ballroom North

Join us to celebrate and congratulate all of the 2018 Midwest award winners

A SPECIAL THANK YOU

From the American Society of Animal Science Midwestern Section and the American Dairy Science Midwest Branch for support of the 2018 awards to the following companies:

Outstanding Young Scientist Awards

Extension Award—Purina Animal Nutrition
Research Award—DSM Nutritional Products, Inc.
Teaching Award—ADSA/ASAS MW Board

Agribusiness Award

BASF

Student Competition Awards

Graduate Oral, M.S.—ADSA/ASAS MW Board
Graduate Oral, Ph.D.—ADSA/ASAS MW Board
Graduate Poster, M.S.—ADSA/ASAS MW Board
Graduate Poster, Ph.D.—ADSA/ASAS MW Board
Undergraduate Oral—Gretchen Hill Appreciation Club, ASAS Foundation
Undergraduate Poster—Gretchen Hill Appreciation Club, ASAS Foundation

The Tim S. Stahly & Ernie Peo Outstanding Swine Nutrition Midwest Graduate Student Award

The Tim S. Stahly & Ernie Peo Memorial and Tribute Fund

Academic Quadrathlon

Agri-King
ASAS Foundation
University of Nebraska—Lincoln

2018 MIDWEST MEETING SPONSORS

Platinum Level

American Society of Animal Science (ASAS)
ASAS Foundation
Diamond V

Gold Level

Dupont

Silver Level

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American Registry of Professional Animal Scientists (ARPAS)
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Elanco Animal Health
Kemin
NutriQuest
Puretein Agri, LLC
Purina Animal Nutrition
Ralco
Zimpro

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King Techina Group
Miconutrients
University of Nebraska–Lincoln
JBS United, Inc.
Vetagro, Inc.

Contributor Level

Adisseo
American Dairy Science Association (ADSA)

ORAL SESSIONS AND SYMPOSIA
MONDAY, MARCH 12, 2018

**GARY ALLEE SYMPOSIUM:
SCIENCE IN PRACTICE – REVISITED**

Chair: Brent Ratliff, Kindstrom-Schmoll, Inc.

Sponsor: Gary Allee Appreciation Club

8:00 AM – 12:05 PM

Grand Ballroom South

- 8:00 AM **Welcoming Remarks**
- 8:05 AM 121 **Advances with Exogenous Dietary Enzymes to Reduce Diet Cost and Improve Viability in Growing Pigs.**
*R. D. Boyd^{*1,2}, C. E. Zier-Rush¹, and E. van Heugten², ¹The Hanor Company, Inc., Franklin, KY, ²North Carolina State University, Raleigh*
- 9:00 AM 122 **Practical Formulation Using Corn Coproducts and Other Alternative Ingredients – New Research, Industry Trends, and Research Gaps.**
*A. M. Gaines^{*1}, O. F. Mendoza¹, and J. E. Estrada², ¹The Maschhoffs, LLC, Carlyle, IL, ²Premex, Inc., Durham, NC*
- 9:55 AM **Break**
- 10:10 AM 123 **Energy in Practical Formulation – New Research, Industry Trends and Direction, and Research Gaps.**
J. van Milgen^{}, J. Noblet, and E. Labussière, INRA, Saint-Gilles, France*
- 11:05 AM 124 **The Overused Phrase “Gut Health” in Practice: What it Means, How to Measure It, Translation to Applied Metrics, Research Direction, and Gaps.**
N. L. Horn^{}, BioMatrix International, Princeton, MN*
- 12:00 PM **Concluding Remarks**

**DAVID BAKER SYMPOSIUM:
IDEAL PROTEIN AND AMINO ACID NUTRITION OF PIGS**

Chair: Robert Easter, University of Illinois at Urbana–Champaign

Sponsor: David Baker Appreciation Club

1:00 PM – 4:50 PM

Grand Ballroom South

- 1:00 PM **Welcoming Remarks**
- 1:05 PM 43 **Ideal Protein – The Seminal North American Work.**
T. K. Chung^{}, DSM Nutritional Products Asia Pacific, Singapore, Singapore*
- 1:35 PM 44 **Practical Application of the Ideal Protein Concept after Twenty-Five Years.**
*R. D. Boyd^{*1} and K. D. Haydon², ¹The Hanor Company, Inc., Franklin, KY, ²CJ America, Chicago, IL*
- 2:15 PM 45 **Increased Lysine: Metabolizable Energy Ratio Improves Grower Pig Performance during a Porcine Reproductive and Respiratory Syndrome Virus Challenge.**
*W. P. Schweer^{*1}, O. F. Mendoza², C. M. Shull², J. Lehman³, A. M. Gaines², K. J. Schwartz⁴, and N. K. Gabler¹, ¹Department of Animal Science, Iowa State University, Ames, ²The Maschhoffs, LLC, Carlyle, IL, ³Merck Animal Health, De Soto, KS, ⁴Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames*
- 2:30 PM 46 **Amino Acid Availability in Heat-Damaged Ingredients.**
W. H. Hendriks^{}, Animal Nutrition Group, Wageningen University, Wageningen, the Netherlands*
- 3:10 PM **Break**
- 3:30 PM 47 **Effects of Various Heat Treatments on Concentrations of Digestible and Metabolizable Energy and on Amino Acid Digestibility in Soybean Meal Fed to Growing Pigs.**
*J. K. Mathai^{*1}, J. K. Htoo², M. Wiltafsky², and H. H. Stein¹, ¹University of Illinois at Urbana–Champaign, ²Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*
- 3:45 PM 48 **Ideal Protein for Sows: Consideration of Balances among a Sow, Fetuses, Mammary Glands, and Milk.**
*S. W. Kim^{*1} and R. A. Easter², ¹North Carolina State University, Raleigh, ²University of Illinois at Urbana–Champaign*
- 4:25 PM 49 **Determination of Standardized Ileal Digestible Valine: Lysine Requirements in Lactating Sows.**
*K. Touchette^{*1}, R. Hinson², and M. Goncalves³, ¹Ajinomoto Heartland, Inc., Chicago, IL, ²United Animal Health, Sheridan, IN, ³Genus PIC, Hendersonville, TN*
- 4:40 PM **Concluding Remarks**

GRADUATE STUDENT ORAL COMPETITION: MS I

Chair:

Sponsor:

**1:45 PM – 4:15 PM
201**

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 125 **Diet Impacts the Preimplantation Histotroph Proteome in Beef Cattle.**
K. Harlow¹, E. G. Taylor², T. M. Casey¹, T. Sobreira³, R. P. Lemenager², and K. R. Stewart¹, ¹Department of Animal Sciences, Purdue University, West Lafayette, IN, ²Purdue University, West Lafayette, IN, ³Bindley Bioscience Center, Purdue University, West Lafayette, IN
- 2:05 PM 126 **Efficiency of Utilizing Standardized Ileal Digestible Lysine for Whole Body Protein Retention in Pregnant Gilts during Early, Mid, and Late Gestation.**
R. A. S. Navales, B. C. Thaler, and C. L. Levesque, South Dakota State University, Brookings*
- 2:20 PM 127 **Trends in Percentage of Beef Calf Lots Sired by Single Sire Breeds and Marketed via Video Auction from 2010 through July 14, 2017.**
E. D. McCabe¹, M. E. King¹, K. E. Fike¹, K. L. Hill², G. M. Rogers³, and K. G. Odde¹, ¹Kansas State University, Manhattan, ²Merck Animal Health, Kaysville, UT, ³Grassy Ridge Consulting, Aledo, TX
- 2:35 PM 128 **Identification of Differentially Expressed Genes between High-Placental-Efficiency and Low-Placental-Efficiency Placentas on Day Ninety-Five of Gestation in Swine.**
S. K. Krombeen¹, V. Shankar¹, R. E. Noorai¹, C. A. Saski¹, J. L. Sharp², M. E. Wilson³, and T. A. Wilmoth¹, ¹Clemson University, Clemson, SC, ²Colorado State University, Fort Collins, ³West Virginia University, Morgantown
- 2:50 PM **Break**
- 3:00 PM 129 **Effects of *Bacillus subtilis* on Growth Performance, Diarrhea, and Gut Health of Weanling Pigs Experimentally Infected with F18 *Escherichia coli*.**
K. Kim¹, C. Jinno¹, A. Ehrlich¹, X. Li¹, J. N. Jørgensen², L. Raff², and Y. Liu¹, ¹University of California, Davis, ²Chr. Hansen A/S, Hørsholm, Denmark
- 3:15 PM 130 **Utilization of Enzymatically Digested Food Waste in Growing-Finishing Pigs. 1. Growth Performance, Visceral Mass, and Carcass Characteristics.**
C. Jinno¹, D. Morash², and Y. Liu¹, ¹University of California, Davis, ²California Safe Soil, LLC, McClellan, CA

- 3:30 PM 131 **Evaluation of a Novel Computer Vision Systems' Ability to Continuously Identify and Track the Activities of Newly Weaned Pigs.**
*J. M. Lancaster**, *E. Psota*, *B. E. Mote*, *L. Perez*, *L. Fricke*,
M. Mittek, *L. E. Kett*, and *T. B. Schmidt*, *University of Nebraska–Lincoln*
- 3:45 PM 132 **Effects of Crystalline Amino Acid Concentration in Diets with or without Formaldehyde Treatment on Nursery Pig Growth Performance and Fecal Microbial Populations.**
*H. E. Williams**¹, *J. C. Woodworth*¹, *J. M. DeRouchey*¹,
*S. S. Dritz*¹, *M. D. Tokach*¹, *B. D. Goodband*¹, *S. C. Fernando*²,
*T. E. Burkey*², *Y. S. Li*², and *D. Mellick*³, ¹*Kansas State University, Manhattan*, ²*University of Nebraska–Lincoln*, ³*Kemin Industries, Des Moines, IA*
- 4:00 PM 133 **Effects of Late Gestation Supplementation on Dam and Subsequent Progeny Performance.**
*A. C. Lansford**, *J. A. Musgrave*, and *R. N. Funston*, *University of Nebraska West Central Research and Extension Center, North Platte*

GRADUATE STUDENT ORAL COMPETITION: MS II

Chair:

Sponsor:

1:45 PM – 4:30 PM

202

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 134 **Increasing Doses of Docosahexaenoic Acid and Eicosapentaenoic Acid on Fetal Programming and Effect on Performance and Plasma Metabolites of Finishing Lambs.**
*K. Nickles**¹, *D. N. Coleman*², and *A. E. Relling*³, ¹*The Ohio State University, Columbus*, ²*Department of Animal Sciences, University of Illinois at Urbana–Champaign*, ³*Department of Animal Sciences, The Ohio State University, Wooster*
- 2:05 PM 135 **Understanding the Performance-Enhancing Mode of Action of In-Feed Subtherapeutic Antibiotics in Nursery Pigs.**
*E. T. Helm**¹, *W. P. Schweer*², *C. M. De Mille*¹, *S. M. Curry*³,
and *N. K. Gabler*², ¹*Iowa State University, Ames*, ²*Department of Animal Science, Iowa State University, Ames*, ³*Oak Ridge Institute for Science and Education, Oak Ridge, TN*
- 2:20 PM 136 **Evidence of Genetic Variation for Recombination Events in Purebred Swine Populations.**
*H. Wackel*¹, *F. Tiezzi*¹, *K. A. Gray*², *W. L. Flowers*¹, *Y. Huang*²,
and *C. Maltecca*¹, ¹*North Carolina State University, Raleigh*,
²*Smithfield Premium Genetics, Rose Hill, NC*

- 2:35 PM 137 **Effects of a Corn-Expressed Phytase on Growth Performance and Bone Ash of Nursery Pigs.**
*J. P. Knapp^{*1}, T. Tsai¹, J. N. Broomhead², J. J. Chewning³, and C. V. Maxwell¹, ¹Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, ²Agrivida, Medford, MA, ³Swine Research Services, Inc., Springdale, AR*
- 2:50 PM **Break**
- 3:00 PM 138 **Determining Rumen-Degradable Protein Requirements in Growing Beef Cattle.**
B. J. Klatt^{}, B. N. Harsh, and J. C. McCann, University of Illinois at Urbana-Champaign*
- 3:15 PM 139 **Effects of Adding Liquid Lactose or Molasses to Pelleted Swine Diets on Pellet Quality and Pig Performance.**
*K. M. Dummire^{*1}, T. A. Wickersham¹, L. L. Frenzel¹, S. R. Sprayberry¹, L. C. Joiner¹, L. P. Hernandez¹, A. M. Cassens¹, B. Dominguez², and C. B. Paulk³, ¹Department of Animal Science, Texas A&M University, College Station, ²Texas A&M University, College Station, ³Kansas State University, Manhattan*
- 3:30 PM 140 **Effects of DL- versus L-Methionine on the Concentrations of Plasma-Free Amino Acids, Muscle Gene Expression, and Growth Performance of Young Growing Pigs.**
*Z. Yang^{*1}, M. S. Hasan¹, J. K. Htoo², D. D. Burnett¹, J. M. Feugang¹, M. A. Crenshaw¹, and S. F. Liao¹, ¹Mississippi State University, Mississippi State, ²Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*
- 3:45 PM 141 **Effect of Low-Protein Diets with or without Supplemented Synthetic Amino Acids on Growth Performance of Nursery Pigs.**
S. Spring^{}, C. Shili, and A. Pezeshki, Oklahoma State University, Stillwater*
- 4:00 PM 142 **Effects of Dam Parity on Prenatal Beef Calf Nutrient Availability.**
N. B. Duncan^{}, K. S. Stoecklein, and A. M. Meyer, Division of Animal Sciences, University of Missouri, Columbia*
- 4:15 PM 143 **Heat Stress Mitigation Strategies for Boars and the Impact of the Most Effective on Sperm Parameters.**
E. D. Grusenmeyer^{}, T. J. Safranski, M. C. Lucy, K. Kerns, P. Sutovsky, W. R. Lamberson, and J. M. Zulovich, University of Missouri, Columbia,*

UNDERGRADUATE STUDENT ORAL COMPETITION I

Chair:

Sponsor:

1:45 PM – 5:00 PM

212

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 469 **Evaluation of Aluminum Sulfate (Alum) as a Feedlot Surface Amendment to Reduce Ammonia, Hydrogen Sulfide, and Greenhouse Gas Emissions from Beef Feedlots.**
*Z. Duncan^{*1} and M. J. Spiels², ¹University of Missouri, Columbia, ²USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE*
- 2:05 PM 470 **The Relationship between Blood Metabolites and Hormones with Intake, Gain, and Efficiency in Beef Cattle Consuming Forage and Then Concentrate Diets.**
M. S. Grant^{} and A. P. Foote, USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE*
- 2:20 PM 471 **Evaluation of Medium-Chain Fatty Acids as a Dietary Additive in Nursery Pig Diets.**
K. A. Thomson^{}, J. T. Gebhardt, A. B. Lerner, J. C. Woodworth, M. D. Tokach, J. M. DeRouchey, B. D. Goodband, and S. S. Dritz, Kansas State University, Manhattan*
- 2:35 PM 472 **Effects of Enrichment Tools on Dairy Calves Housed in Hutches.**
*G. A. Norden^{*1}, T. L. Williams¹, and Z. T. Williams², ¹University of Findlay, Findlay, OH, ²Tennessee Technological University, Cookeville*
- 2:50 PM **Break**
- 3:00 PM 473 **Effects of Feeding Organic and Conventional Mineral Supplements on Dam Weight throughout the Last Period of Gestation in Nubian Goats.**
*A. M. Stiegel¹, C. J. Rocco^{*1}, T. L. Williams¹, and Z. T. Williams², ¹University of Findlay, Findlay, OH, ²Tennessee Technological University, Cookeville*
- 3:15 PM 474 **Effect of Essential Oil Supplementation to Lactation Diets on Reproductive Performance and Fecal Characteristics of Sows.**
*K. Fuoss^{*1}, M. D. Lindemann², and C. L. Levesque¹, ¹South Dakota State University, Brookings, ²University of Kentucky, Lexington*
- 3:30 PM 475 **The Effects on Average Daily Gain When Adding Corn to a Turkey Grower Ration.**
*A. L. Brehm^{*1}, T. L. Williams¹, and Z. T. Williams², ¹University of Findlay, Findlay, OH, ²Tennessee Technological University, Cookeville*

- 3:45 PM 476 **Alternatives to Antibiotics to Control Acidosis and Liver Abscesses in Cattle.**
A. C. Bartenslager^{}, S. K. Rohde, K. L. Sorenson, A. L. Knoell, and S. C. Fernando, University of Nebraska–Lincoln*
- 4:00 PM 477 **Side Bias and Time of Day Influenced Cognition after Minipigs were Conditioned Using a Novel Tactile Stimulation Device.**
M. J. Coffin¹, R. Manjarin¹, J. M. Mumm², E. M. Bortoluzzi², L. A. Ruiz², M. Tommerdahl³, J. K. Holden⁴, T. Walilko⁵, L. Zai⁶, and L. E. Hulbert², ¹California Polytechnic State University, San Luis Obispo, ²Kansas State University, Manhattan, ³Department of Biomedical Engineering, University of North Carolina, Chapel Hill, ⁴Corticalmetrics, Carrboro, NC, ⁵Applied Research Associates, Inc., Littleton, CO, ⁶Lucent Research, LLC, Parker, CO
- 4:15 PM 478 **Effect of Melatonin Implants on Semen Quality of Assaf Rams during a Long-Day Photoperiod.**
C. Macedo¹, C. Escobar^{2,3}, I. Crespo-Félez^{2,4}, R. Manjarin¹, R. N. Kirkwood⁵, J. C. D. de Tejerina^{2,3}, R. Gonzalez-Montaña^{2,3}, and F. Martinez-Pastor^{3,4}, ¹California Polytechnic State University, San Luis Obispo, ²Department of Medicine, Surgery and Veterinary Anatomy, University of León, León, Spain, ³INDEGSAL, University of León, León, Spain, ⁴Department of Molecular Biology, University of León, León, Spain, ⁵School of Animal and Veterinary Sciences, University of Adelaide, Roseworthy, SA, Australia
- 4:30 PM 479 **Determining Effects of Residual Feed Intake on Economically Important Production Traits in Crossbred Beef Cattle.**
S. A. Hershorin¹, R. Manjarin¹, A. M. Emond¹, S. Id-Lahoucine², P. Fonseca², E. Massender², A. Livernois², and A. Canovas², ¹California Polytechnic State University, San Luis Obispo, ²Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada
- 4:45 PM 480 **Evaluation of Floor Cooling on Lactating Sows under Moderate Heat Stress within a Day and Relationships of Measures of Heat Stress to Estimated Heat Removal Rates.**
J. Maskal¹, F. A. Cabezon¹, A. P. Schinckel¹, J. N. Marchant-Forde², J. S. Johnson², and R. M. Stwalley³, ¹Department of Animal Sciences, Purdue University, West Lafayette, IN, ²USDA–ARS Livestock Behavior Research Unit, West Lafayette, IN, ³Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, IN

UNDERGRADUATE STUDENT ORAL COMPETITION II

Chair:

Sponsor:

1:45 PM – 5:00 PM

213

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 481 **The Effects of Supplementing Increasing Doses of Eicosapentaenoic Acid and Docosahexaenoic Acid Fatty Acids to Ewes in Late Gestation on Ewe Performance and Milk Production and Offspring Performance and Plasma Metabolites.**
*L. Hamer^{*1}, D. N. Coleman², and A. E. Relling³, ¹Department of Animal Sciences, The Ohio State University, Wooster, ²Department of Animal Sciences, University of Illinois at Urbana-Champaign, ³Department of Animal Sciences, The Ohio State University, Wooster*
- 2:05 PM 482 **Determination of the Minimum Inhibitory Concentration of Various Medium-Chain Fatty Acid-Based Products in *Escherichia coli*, Enterotoxigenic *Escherichia coli*, and *Campylobacter coli*.**
*A. J. Swanson^{*1}, R. A. Cochrane¹, R. G. Amachawadi¹, S. Remfry¹, A. B. Lerner¹, T. G. Nagaraja¹, J. Pluske², M. C. Niederwerder³, C. R. Stark¹, C. B. Paulk¹, J. C. Woodworth¹, S. S. Dritz¹, M. D. Tokach¹, J. M. DeRouche¹, R. D. Goodband¹, and C. K. Jones¹, ¹Kansas State University, Manhattan, ²Murdoch University, Perth, WA, Australia, ³Department of Diagnostic Medicine/Pathobiology, Kansas State University, Manhattan*
- 2:20 PM 483 **Effects of Standardized Ileal Digestible Lysine on Seven- to Fifteen-Kilogram Nursery Pigs' Growth Performance.**
G. E. Nichols^{}, C. M. Vier, A. B. Lerner, M. B. Menegat, H. S. Cemin, C. K. Jones, J. M. DeRouche, M. D. Tokach, B. D. Goodband, J. C. Woodworth, and S. S. Dritz, Kansas State University, Manhattan*
- 2:35 PM 484 **Effects of Medicated and Control Feed on Weight Gain and Digestibility in Early Gestation Goats.**
*A. Bolton^{*1}, J. Eier¹, C. Fischer¹, Z. T. Williams², and T. L. Williams¹, ¹University of Findlay, Findlay, OH, ²Tennessee Technological University, Cookeville*
- 2:50 PM **Break**

- 3:00 PM 485 **Effects of Gestation and Lactation on Water Consumption in Lines of Mice Divergently Selected for Water Consumption.**
*D. Magee^{*1}, A. Goldkamp², M. T. Haag³, E. Leffeler², K. Sharp², and W. R. Lamberson³, ¹Tougaloo College, Tougaloo, MS, ²University of Missouri, Columbia, ³Division of Animal Sciences, University of Missouri, Columbia*
- 3:15 PM 486 **Zinc Chloride Supplementation during Ovarian Cortex Vitrification Improves In Vitro Follicular Development in Pigs.**
M. Martz^{} and B. D. Whitaker, University of Findlay, Findlay, OH*
- 3:30 PM 487 **Effect of Pre- and Postinsemination Maternal Plane of Nutrition on Estrus and Embryo Development.**
*R. T. Douglas^{*1}, E. E. Beck¹, J. J. J. Rich¹, E. J. Northrop¹, S. D. Perkins¹, T. W. Geary², J. A. Walker¹, and G. A. Perry¹, ¹Department of Animal Science, South Dakota State University, Brookings, ²USDA-ARS Fort Keogh Livestock and Range Research Laboratory, Miles City, MT*
- 3:45 PM 488 **Studying the Potential Effects of an Indicator of *Haemonchus contortus* Resistance on Production Traits in Rideau Arcott Sheep.**
*A. M. Emond^{*1}, A. Canovas², E. Massender², S. A. Hershorin¹, A. Livernois², D. Kennedy³, and R. Manjarin¹, ¹California Polytechnic State University, San Luis Obispo, ²Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, ³Ontario Ministry of Agriculture and Food, Guelph, ON, Canada*
- 4:00 PM 489 **Quercetin Supplementation during Boar Semen Thawing and Incubation Improves Sperm Characteristics.**
E. Winn^{} and B. D. Whitaker, University of Findlay, Findlay, OH*
- 4:15 PM 490 **Relationships of Placental Size with Beef Cow and Calf Characteristics.**
K. S. Stoecklein^{}, N. B. Duncan, and A. M. Meyer, Division of Animal Sciences, University of Missouri, Columbia*
- 4:30 PM 491 **Effects of Linoleic and Linolenic Acid Supplementation on the In Vitro Production of Pig Embryos in a Heat-Stressed Environment.**
M. Mentler^{}, J. Current, and B. D. Whitaker, University of Findlay, Findlay, OH*
- 4:45 PM 492 **Immunological Response of Pigs by Lymphocyte Proliferation by the Supplementation of Beta-Glucans.**
H. Kerkaert^{}, J. Koepke, C. L. Levesque, and B. C. Thaler, South Dakota State University, Brookings*

GRADUATE STUDENT ORAL COMPETITION: PHD I

Chair:

Sponsor:

1:45 PM – 4:15 PM

214

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 144 **Evaluation of Phase-Feeding Strategies and Lysine Specifications for Grow-Finish Pigs on Growth Performance and Carcass Characteristics.**
*M. B. Menegat**, *S. S. Dritz*, *M. D. Tokach*, *J. C. Woodworth*, *J. M. DeRouche*, and *R. D. Goodband*, *Kansas State University, Manhattan*
- 2:05 PM 145 **Tributylin Supplementation to Neonatal Piglets Enhances Muscle Growth through Modified Satellite Cell Behavior.**
*R. L. Murray**, *W. Zhang*, *M. E. Iwaniuk*, and *C. H. Stahl*, *University of Maryland, College Park*
- 2:20 PM 146 **In Utero Heat Stress Causes Reduced Testicular Area at Puberty, Reduced Total Sperm Production, and Increased Sperm Abnormalities in Boars.**
D. W. Lugar¹, *J. A. Proctor¹*, *T. J. Safranski²*, *M. C. Lucy²*, and *K. R. Stewart³*, ¹*Purdue University, West Lafayette, IN*, ²*University of Missouri, Columbia*, ³*Department of Animal Sciences, Purdue University, West Lafayette, IN*
- 2:35 PM 147 **Effects of Energy Restriction during Gilt Development on Characterization and Quantification of Milk Oligosaccharides.**
S. M. Barnett¹, *M. D. Trenhaile-Grannemann¹*, *D. M. van Sambeek¹*, *P. S. Miller¹*, *J. Salcedo²*, *D. Barile²*, and *T. E. Burkey¹*, ¹*University of Nebraska-Lincoln*, ²*University of California, Davis*
- 2:50 PM **Break**
- 3:00 PM 148 **Effects of Kernel Processing of Corn Silage with and without the Brown Midrib Trait on Finishing Performance of Steers.**
L. A. Ovinge¹, *F. H. Hilscher¹*, *C. J. Bittner¹*, *B. M. Boyd¹*, *J. N. Anderson²*, and *G. E. Erickson¹*, ¹*University of Nebraska-Lincoln*, ²*Mycogen Seeds, Indianapolis, IN*
- 3:15 PM 149 **Cowgames: Developing and Implementing an Online Cattle Breeding Simulation.**
M. T. Haag¹, *J. J. Le Tourneau²*, *R. M. Marra²*, *M. F. Smith²*, and *W. R. Lamberson¹*, ¹*Division of Animal Sciences, University of Missouri, Columbia*, ²*University of Missouri, Columbia*
- 3:30 PM 150 **Genetic Selection for Age at Puberty Altered Sow Colostrum Production and Piglet Survival.**
*J. G. Wiegert**, *G. M. See*, and *M. T. Knauer*, *North Carolina State University, Raleigh*

- 3:45 PM 151 **Growth, Performance, and Carcass Characteristics of Feedlot Holstein Steers Fed Ractopamine Hydrochloride.**
C. L. Haviland¹, C. J. Richards¹, J. A. Reed¹, M. E. Youngers¹, S. T. Quanz¹, C. G. Lockard¹, M. A. Woolsoncroft¹, T. C. Husz¹, C. L. Goad¹, T. A. Jackson², D. L. Step², M. Corbin³, and C. R. Krehbiel¹, ¹Oklahoma State University, Stillwater, ²Department of Veterinary Clinical Sciences, Oklahoma State University, Stillwater, ³Zoetis, Florham Park, NJ
- 4:00 PM 152 **Degradation of Dietary Fiber in the Stomach, Small Intestine, and Large Intestine of Growing Pigs Fed Corn- or Wheat-Based Diets without or with Microbial Xylanase.**
J. J. Abelilla^{} and H. H. Stein, University of Illinois at Urbana-Champaign*

GRADUATE STUDENT ORAL COMPETITION: PHD II

Chair:

Sponsor:

1:45 PM – 4:45 PM

216

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 154 **Comparison of Two Serum Pregnancy Tests in Detection of Artificial Insemination versus Natural Service Pregnancies in Beef Herds.**
J. J. J. Rich¹, E. J. Northrop¹, S. D. Perkins¹, E. E. Beck¹, J. Rhodes², and G. A. Perry¹, ¹Department of Animal Science, South Dakota State University, Brookings, ²IDEXX Laboratories, Westbrook, ME
- 2:05 PM 155 **The Energy Content of Diets Containing *Lactobacillus*-Fermented Barley or Wheat for Weaned Pigs.**
B. Koo^{}, D. Bustamante-García, and C. M. Nyachoti, Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada*
- 2:20 PM 156 **Evaluation of Long-Acting Combination Implants Containing Trenbolone Acetate and Estradiol-17 β on Live Performance, Carcass Traits, and Sera Metabolites in Finishing Steers.**
Z. K. F. Smith¹, A. J. Thompson¹, J. P. Hutcheson², W. T. Nichols², and B. J. Johnson¹, ¹Texas Tech University, Lubbock, ²Merck Animal Health, De Soto, KS
- 2:35 PM 157 **Comparative Digestibility and Retention of Calcium and Phosphorus by Gestating Sows and Growing Pigs Fed Low- and High-Phytate Diets without or with Microbial Phytase.**
S. A. Lee¹, C. L. Walk², and H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, ²AB Vista, Marlborough, United Kingdom

- 2:50 PM **Break**
- 3:00 PM 158 **Mineral Intake, Feeding Behavior, and Growth Performance of Cow–Calf Pairs Grazing Native Range.**
K. L. McCarthy¹, M. Undr², and C. R. Dahlen¹, ¹Department of Animal Sciences, North Dakota State University, Fargo, ²North Dakota State University Central Grasslands Research Extension Center, Streeter
- 3:15 PM 159 **Effects of Grain- or Forage-Based Diets on Digestibility and Ruminal pH in Angus or Holstein Steers.**
P. H. V. Carvalho, A. C. J. Pinto, and T. L. Felix, Pennsylvania State University, University Park*
- 3:30 PM 160 **Effect of Different Fat Sources and Vitamin E Levels on Growth Performance, Carcass Characteristics, and Meat Quality of Pigs Grown to One Hundred Fifty Kilograms.**
D. Wang, Y. D. Jang², G. Rentfrow¹, M. J. Azain³, and M. D. Lindemann¹, ¹University of Kentucky, Lexington, ²University of Wisconsin–River Falls, ³University of Georgia, Athens*
- 3:45 PM 161 **Effect of Direct-Fed Microbials on Apparent Nutrient Digestibility, Fecal Microbial Population, and Blood Metabolites in the Moderately Exercised Horse.**
C. A. Phillips, C. A. Cavinder, E. Memili, B. J. Rude, and T. Smith, Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State*
- 4:00 PM 162 **Methionine Supply during Late Gestation Triggers Sex-Specific Divergent Trajectories of Metabolism and Epigenetic Systems in Bovine Placenta.**
F. Batistel, Y. X. Pan¹, C. Parys², and J. J. Loor¹, ¹University of Illinois at Urbana–Champaign, ²Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*
- 4:15 PM 163 **Effect of Tail-End Dehulling of Canola Meal on Apparent and Standardized Ileal Digestibility of Amino Acids When Fed to Growing Pigs.**
G. A. Mejicanos and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada*
- 4:30 PM 164 **Feeding a Diet with a Near-Optimal Amino Acid Profile Improves Energy Utilization for Milk Production in Lactating Sows.**
S. Zhang², J. S. Johnson², M. Qiao³, J. Liesman¹, and N. L. Trottier¹, ¹Michigan State University, East Lansing, ²USDA–ARS Livestock Behavior Research Unit, West Lafayette, IN, ³Institute of Animal Husbandry and Veterinary Science, Hubei Academy of Agricultural Sciences, Wuhan, China

**RUMINANT MANAGEMENT SYMPOSIUM:
ACCOUNTING FOR GENETIC POTENTIAL IN ANIMAL
RESEARCH: CHALLENGES AND OPPORTUNITIES**

Chair: William J. Sexten, Certified Angus Beef LLC

Sponsor:

3:00 PM – 4:50 PM

205/206

- 3:00 PM **Introductory Remarks**
- 3:05 PM 401 **Using Genetic Relationships to Improve the Design and Analysis of Animal Science Studies.**
R. J. Tempelman, Michigan State University, East Lansing*
- 3:35 PM 402 **Considerations for Including Individual Animal Genetic Information in Analyses of Experimental Data.**
D. W. Shike, Department of Animal Sciences, University of Illinois at Urbana–Champaign*
- 4:05 PM 403 **Using Breed Composition, Breed Differences, Selection Tools, and New Technologies to Optimize Commercial Cattle Production and Allocation of Beef Cattle in Research Programs.**
L. A. Kuehn, J. W. Keele, and R. M. Thallman, USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE*
- 4:35 PM **Panel Discussion**

**ORAL SESSIONS AND SYMPOSIA
TUESDAY, MARCH 14, 2017**

**DAVID SCHINGOETHE SYMPOSIUM:
CONFRONTING MANAGEMENT CHALLENGES ASSOCIATED
WITH INCREASING AUTOMATION ON DAIRIES**

Chair: Michael Brouk, Kansas State University
Sponsor: David Schingoethe Appreciation Club
8:30 AM – 11:45 AM
210/211

- 8:30 AM Welcoming Remarks
- 8:35 AM 50 **Nutritional Strategies for Automatic Milking Systems.**
J. A. Salfer, University of Minnesota, St. Cloud*
- 9:20 AM 51 **Considerations for Minimizing Lameness in Automated Milking Systems.**
D. H. Kleinschmit, J. S. Weyers, A. J. Geiger, C. D. Ashworth, M. T. Socha, R. L. Olson, and F. W. Sutton, Zinpro Corporation, Eden Prairie, MN*
- 10:05 AM Break
- 10:15 AM 52 **Facility Design Considerations for New and Retrofitted Automated Milking Systems.**
M. J. Brouk, Kansas State University, Manhattan*
- 11:00 AM 53 **On-Farm Application of Precision Dairy Technologies.**
J. M. Bewley, Bewley Dairy Consulting, Lexington, KY*

**TEACHING SYMPOSIUM:
HIGH-IMPACT EDUCATIONAL PRACTICES**

Chair: Jodi Sterle, Iowa State University
Sponsor:
8:30 AM – 10:50 AM
201

- 8:30 AM Welcoming Remarks
- 8:35 AM 466 **The Role of Internship Programs in Undergraduate Animal Sciences Education.**
L. L. Baranko, North Dakota State University, Fargo*
- 9:05 AM 467 **Organization of a First-Semester Learning Community Based on Student Interests and Backgrounds in Coordination with an Introductory Animal Science Orientation Course.**
J. Bundy, Iowa State University, Ames*
- 9:35 AM Break

- 9:50 AM 468 **Quantity and Quality: Education Abroad for Animal Science Majors.**
*K. A. Newlon**, *The Ohio State University, Columbus*
- 10:20 AM **Panel Discussion**

**PHYSIOLOGY SYMPOSIUM:
ENVIRONMENTAL INFLUENCES DURING PREGNANCY**

Chair: Tiffany Wilmoth, Clemson University

Sponsor:

8:30 AM – 10:15 AM

205/206

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 368 **Prenatal Heat Stress and the Impact on Swine Performance during Postnatal Life.**
*J. S. Johnson*¹ and L. H. Baumgard², ¹USDA–ARS Livestock Behavior Research Unit, West Lafayette, IN, ²Department of Animal Science, Iowa State University, Ames*
- 9:05 AM 369 **Impact of Early Nutrition on Skeletal Muscle and Adipose Tissue Development.**
*M. Du**, *Washington State University, Pullman*
- 9:35 AM 370 **Placental Plasticity: Understanding How Nutrition and Management Alters Uteroplacental Blood Flow.**
*K. A. Vonnahme**, *Department of Animal Sciences, North Dakota State University, Fargo; Zoetis, Parsippany, NJ*
- 10:05 AM **Concluding Remarks**

**GROWTH, DEVELOPMENT, MUSCLE BIOLOGY,
AND MEAT SCIENCE SYMPOSIUM:
EMERGING MEAT-SPECIFIC RESEARCH NEEDS**

Chair: Justin W. Rickard, Illinois State University

Sponsor:

8:30 AM – 10:35 AM

216

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 181 **Association of Posthatch Muscle Growth with the Progression of Breast Muscle Myopathies.**
*S. G. Velleman**, *The Ohio State University/Ohio Agricultural Research and Development Center, Wooster*
- 9:05 AM 182 **What is Next for the Eating Quality of U.S.–Produced Pork?**
*B. R. Wiegand**, *University of Missouri, Columbia*
- 9:35 AM **Break**

9:50 AM 183 **Beef Research Needs for the Future: End-User Perspective.**
*W. J. Sexten**, *D. I. Clark*, *C. E. Walenciak*, and *J. F. Stika*,
Certified Angus Beef LLC, Wooster, OH

10:20 AM **Panel Discussion**

**NONRUMINANT NUTRITION SYMPOSIUM:
 OXIDATIVE STRESS IN THE CONTEXT OF ANIMAL PRODUCTION**

**Chairs: Victor G. Perez, Pancosma and
 Omarh Mendoza, The Maschhoffs**

Sponsor:

**8:30 AM – 12:00 PM
 Grand Ballroom South**

8:30 AM **Welcoming Remarks**

8:35 AM 268 **General Concepts and Measures of Oxidative Stress, Implication on Oxidative Balance, an Update on Recent Research in Swine, and Thoughts on Future Research.**
*B. J. Kerr*¹, *S. C. Lindblom*², *M. F. Overholt*³, and *S. M. Curry*⁴,
¹*USDA-ARS, Ames, IA*, ²*Iowa State University, Ames*, ³*University of Illinois at Urbana-Champaign*, ⁴*Oak Ridge Institute for Science and Education, Oak Ridge, TN*

9:10 AM 269 **In Vitro Analysis of Antioxidant Properties of Mint Oils.**
*Z. Wu*¹, *B. Tan*¹, *Y. Liu*¹, *J. L. Dunn*², and *P. Ji*¹, ¹*University of California, Davis*, ²*ADM Alliance Nutrition, Bluffton, IN*

9:25 AM 270 **Mitochondrial Physiology, Oxidative Stress, and Animal Production Efficiency.**
*W. G. Bottje**, *Department of Poultry Science, Division of Agriculture, University of Arkansas, Fayetteville*

9:55 AM **Break**

10:10 AM 271 **Evaluation of a Phytogetic Blend on Inflammation, Oxidative Stress, Gut Permeability, Gut Morphology, and Performance in Nursery Pigs.**
*E. T. Helm*¹, *S. M. Mendoza*², *G. R. Murugesan*², *E. G. Hendel*², *S. Stelzhammer*³, *G. Gourley*⁴, and *N. K. Gabler*¹, ¹*Department of Animal Science, Iowa State University, Ames*, ²*BIOMIN America Inc., Kansas City, KS*, ³*BIOMIN Holding GmbH, Getzersdorf, Austria*, ⁴*Gourley Research Group, LLC, Webster City, IA*

10:25 AM 272 **Protective Effects of Nutrients or Non-nutrients on Oxidative Stress of Weaned Pigs.**
*Y. Liu** and *P. Ji*, *University of California, Davis*

10:55 AM 273 **Supplementation of Organic and Inorganic Selenium on Stress of Weaned Pigs. I. Growth Performance and Immune Responses.**
*N. Doan*¹, *P. Ji*¹, *K. Kim*¹, *D. Bravo*², and *Y. Liu*¹, ¹*University of California, Davis*, ²*Pancosma, Geneva, Switzerland*

11:10 AM 274 **Impact of Feeding Oxidized Oils to Induce Oxidative Stress on the Quality of Pork.**
*A. C. Dilger¹, M. F. Overholt¹, D. D. Boler¹, and B. J. Kerr²,
¹University of Illinois at Urbana–Champaign, ²USDA–ARS,
 Ames, IA*

11:40 AM **Panel Discussion**

**RUMINANT NUTRITION SYMPOSIUM:
 INTERACTION OF NUTRITION, IMMUNOLOGY, AND GUT
 INTEGRITY: IMPACTS ON CATTLE HEALTH AND PERFORMANCE**

Chair: Tara L. Felix, Pennsylvania State University

Sponsor:

8:30 AM – 12:00 PM

203/204

8:30 AM **Welcoming Remarks**

8:35 AM 404 **Effects of Low Feed Intake on Gastrointestinal Function.**
G. B. Penner, Department of Animal and Poultry Science,
 University of Saskatchewan, Saskatoon, SK, Canada*

9:20 AM 405 **Heat Stress, Consequences of Gut Barrier Dysfunction.**
*L. H. Baumgard¹, E. A. Horst², E. J. Mayorga Lozano¹,
 M. A. Al-Qaisi², C. S. Shouse², S. K. Kvidera², S. Lei¹, J. T. Seibert²,
 H. A. Ramirez², A. F. Keating², J. W. Ross², J. T. Selsby²,
 R. Appuhamy², and R. P. Rhoads³, ¹Department of Animal Science,
 Iowa State University, Ames, ²Iowa State University, Ames,
³Virginia Tech, Blacksburg*

10:05 AM **Break**

10:15 AM 406 **Can We Quantify the Impact of Inflammation and Immune Activation on Nutrient Use and Partitioning?**
B. J. Bradford and C. M. Ylloja, Department of Animal Sciences and Industry, Kansas State University, Manhattan*

11:00 AM 407 **Ruminal Epithelial Integrity and Liver Abscesses in Feedlot Cattle.**
T. G. Nagaraja, Kansas State University, Manhattan*

11:45 AM **Concluding Remarks**

SWINE YOUNG SCHOLAR

Chair: Michael J. Rincker, DPI GLOBAL

Sponsor:

**8:30 AM – 9:35 AM
212**

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 100 **Young Scholar Presentation: Primary Hypogonadism in Gonadotropin-Releasing Hormone II Receptor Knockdown Boars.**
A. T. Desaulniers¹, R. A. Cederberg¹, R. V. Knox², C. A. Lents³, and B. R. White¹, ¹University of Nebraska–Lincoln, ²University of Illinois at Urbana–Champaign, ³USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE
- 9:05 AM 101 **Young Scholar Presentation: How Is Pig Intestinal Function and Health Altered in Response to Pathogen Challenges?**
S. M. Curry¹, E. R. Burrough², and N. K. Gabler³, ¹Oak Ridge Institute for Science and Education, Oak Ridge, TN, ²Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, ³Department of Animal Science, Iowa State University, Ames

NONRUMINANT NUTRITION I: MINERALS

**Chairs: Ryan Samuel, Alltech and
Ferdinando Almeida, Novus International**

Sponsor:

**8:30 AM – Noon
213**

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 242 **Effects of Dietary Phosphorus Concentrations in Response to Increasing Dietary Calcium Concentrations on Growth Performance of Nursery Pigs.**
F. Wu^{}, M. D. Tokach, J. M. DeRouchey, S. S. Dritz, J. C. Woodworth, and R. D. Goodband, Kansas State University, Manhattan*
- 8:50 AM 243 **Effects of Increasing Salt Concentration on Growth Performance of Eleven- to Thirty- and Twenty-Seven- to Sixty-Five-Kilogram Pigs.**
D. J. Shawk^{}, A. B. Lerner, M. D. Tokach, S. S. Dritz, J. C. Woodworth, B. D. Goodband, and J. M. DeRouchey, Kansas State University, Manhattan*

- 9:05 AM 244 **Requirement for Digestible Calcium at Different Dietary Concentrations of Digestible Phosphorus Indicated by Growth Performance and Bone Ash of Fifty- to Eighty-Five-Kilogram Pigs.**
L. V. Lagos¹, C. L. Walk², and H. H. Stein³, ¹University of Illinois at Urbana-Champaign, ²AB Vista, Marlborough, United Kingdom, ³University of Illinois at Urbana-Champaign, Urbana
- 9:20 AM 245 **Effects of Increasing Zinc from Zinc Hydroxychloride on Growth Performance, Carcass Characteristics, and Economic Return of Pigs Housed in a Commercial Environment.**
H. S. Cemin¹, J. C. Woodworth¹, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouchey¹, R. D. Goodband¹, and J. L. Usry², ¹Kansas State University, Manhattan, ²Micronutrients, Inc., Indianapolis, IN
- 9:35 AM 246 **Copper Hydroxychloride Improves Growth Performance and Reduces Diarrhea Frequency of Weanling Pigs Fed a Corn-Soybean Meal Diet.**
C. D. Espinosa¹, S. R. Fry², J. L. Usry², and H. H. Stein¹, ¹University of Illinois Urbana-Champaign, Urbana, ²Micronutrients, Inc., Indianapolis, IN
- 9:50 AM **Break**
- 10:00 AM 247 **Long-Term Effects of Dietary Source and Level of Copper on Reproductive Performance, Nutrient Digestibility, Milk Composition, and Tissue Trace Mineral Concentrations of Sows.**
N. Lu^{}, H. J. Monegue, and M. D. Lindemann, University of Kentucky, Lexington*
- 10:15 AM 248 **Effect of Iron Treatment at Weaning on Growth Performance in Nursery Pigs Fed Diets Supplemented with Copper.**
M. J. Estienne^{}, S. G. Clark-Deener², and K. A. Williams¹, ¹Virginia Tech, Suffolk, ²Virginia-Maryland College of Veterinary Medicine, Blacksburg, VA*
- 10:30 AM 249 **Effects of Feeding a Mineral Amino Acid Complex from Nursery to Second Parity on Sow Productivity and Gait Analysis.**
A. Tinkle¹, M. E. Wilson², Z. J. Rambo², K. Parham¹, C. M. De Mille¹, K. J. Duberstein¹, M. J. Azain¹, and C. R. Dove¹, ¹University of Georgia, Athens, ²Zinpro Corporation, Eden Prairie, MN
- 10:45 AM 250 **Effects of Feeding Increasing Levels of Iron from Iron Sulfate or a Novel Source of Dietary Iron on Nursery Pig Growth Performance and Blood Parameters.**
H. E. Williams¹, J. C. Woodworth¹, J. M. DeRouchey¹, S. S. Dritz¹, M. D. Tokach¹, R. D. Goodband¹, and J. L. Usry², ¹Kansas State University, Manhattan, ²Micronutrients, Inc., Indianapolis, IN

- 11:00 AM 251 **Determination of the Efficacy of Titrated Levels of a Water-Soluble Zinc Amino Acid Complex on Growth Performance of Nursery Pigs.**
P. Aparachita¹, S. D. Carter¹, C. V. Cooper¹, I. Silva Lara¹, A. Sawyer¹, Z. J. Rambo², and T. L. Ward², ¹Oklahoma State University, Stillwater; ²Zinpro Corporation, Eden Prairie, MN
- 11:15 AM 252 **Effect of Cyclic Heat Stress and Supplemented Inorganic and Organic Zinc Source Levels on Grow-Finish Pig Growth Performance and Estimated Body Composition.**
*K. M. Mills^{*1}, J. A. Feldpausch¹, A. W. Duttlinger¹, S. K. Elefson¹, S. M. Zuelly¹, J. S. Radcliffe¹, Z. J. Rambo², and B. T. Richert¹, ¹Purdue University, West Lafayette, IN; ²Zinpro Corporation, Eden Prairie, MN*
- 11:30 AM 253 **Effect of Dietary Source and Concentrations of Copper, Manganese, and Zinc on Growth Performance and Immune Response of Nursery Pigs following an Acute Lipopolysaccharide Challenge.**
S. SchAAF¹, S. D. Carter¹, C. V. Cooper¹, P. Aparachita¹, I. Silva Lara¹, C. Shil¹, K. R. Perryman², and J. L. Usry², ¹Oklahoma State University, Stillwater; ²Micronutrients, Inc., Indianapolis, IN
- 11:45 AM 254 **Effects of a Chronic Lipopolysaccharide Challenge on Growth Performance and Immune Response of Nursery Pigs Fed Differing Sources and Concentrations of Copper, Manganese, and Zinc.**
I. Silva Lara¹, S. D. Carter¹, C. V. Cooper¹, P. Aparachita¹, K. R. Perryman², and J. L. Usry², ¹Oklahoma State University, Stillwater; ²Micronutrients, Inc., Indianapolis, IN

**NONRUMINANT NUTRITION II:
 FEED PROCESSING AND INGREDIENTS**

Chair: Omarh Mendoza, The Maschhoffs and Roman Moreno, Seaboard Foods

Sponsor:

8:30 AM – 12:15 PM

214

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 255 **Growth Performance, Organ Weights, and Blood Parameters of Nursery Pigs Fed Diets Containing Cold-Pressed Canola Cake.**
J. W. Lee^{} and T. A. Woyengo, South Dakota State University, Brookings*

- 8:50 AM 256 **Nutrient Digestibility of Extruded Canola Meal in Grower Pigs.**
*C. M. E. Heyer^{*1}, L. F. Wang¹, E. Beltranena², and R. T. Zijlstra¹,
¹Department of Agricultural, Food and Nutritional Science,
 University of Alberta, Edmonton, AB, Canada, ²Alberta Agriculture
 and Forestry, Edmonton, AB, Canada*
- 9:05 AM 257 **Effects of Increasing Dietary Concentrations of High-Protein Distiller's Dried Grains on Growth Performance of Nursery Pigs.**
*Z. Yang^{*1}, P. E. Urriola¹, A. M. Hilbrands², L. J. Johnston², and
 G. C. Shurson¹, ¹Department of Animal Science, University of
 Minnesota, Saint Paul, ²West Central Research and Outreach
 Center, University of Minnesota, Morris*
- 9:20 AM 258 **Chemical Analysis of Formaldehyde-Treated Spray-Dried Plasma and Effects on Weaned Pig Growth Performance When Included in Diets.**
*J. M. Campbell¹, J. D. Crenshaw¹, J. Polo¹, D. Mellick²,
 M. Bienhoff², and H. H. Stein³, ¹APC, Inc., Ankeny, IA, ²Kemin
 Industries, Des Moines, IA, ³University of Illinois at Urbana–
 Champaign*
- 9:35 AM 259 **Impact of Formaldehyde-Treated Pig Feed Containing Spray-Dried Plasma on Weaned Pig Growth Performance.**
*J. M. Campbell¹, J. D. Crenshaw¹, J. Polo¹, D. Mellick²,
 M. Bienhoff², and H. H. Stein³, ¹APC, Inc., Ankeny, IA, ²Kemin
 Industries, Des Moines, IA, ³University of Illinois at Urbana–
 Champaign*
- 9:50 AM **Break**
- 10:00 AM 260 **Effects of Feeding Raw, Steam-Pelleted, or Extruded Faba Bean on Diet Nutrient and Energy Digestibility and Growth Performance in Weaned Pigs.**
*U. S. Ruiz^{*1}, G. C. Luna², L. F. Wang³, E. Beltranena⁴, and
 R. T. Zijlstra³, ¹University of São Paulo, Piracicaba, Brazil,
²Universidad Autónoma de Baja California, Mexicali, Mexico,
³Department of Agricultural, Food and Nutritional Science,
 University of Alberta, Edmonton, AB, Canada, ⁴Alberta
 Agriculture and Forestry, Edmonton, AB, Canada*
- 10:15 AM 261 **Effects of Extrusion and Particle Size on Nutrient and Energy Digestibility of Wheat Mill Run in Growing Pigs.**
*U. S. Ruiz^{*1}, L. F. Wang², E. Beltranena³, and R. T. Zijlstra²,
¹University of São Paulo, Piracicaba, Brazil, ²Department of
 Agricultural, Food and Nutritional Science, University of Alberta,
 Edmonton, AB, Canada, ³Alberta Agriculture and Forestry,
 Edmonton, AB, Canada*
- 10:30 AM 262 **Impact of Hybrid Rye (Brasetto) on Finisher Pig Performance and Carcass and Meat Quality.**
D. Bussièrès^{}, Groupe Cérés Inc., Quebec, QC, Canada*

- 10:45 AM 263 **Interaction between Protein Sources (Wheat Gluten and Protein Concentrate from Soy and Potato) and Starch Sources (Pregelatinized and Native Pea Starch) on Weanling Pig Growth Performance and Diarrhea Incidence.**
N. Nguyen^{1,2}, J. Fledderus³, R. Busink², C. Smits², P. J. L. Ramaekers², and N. W. Jaworski², ¹Wageningen University, Wageningen, the Netherlands, ²Trouw Nutrition, Amersfoort, the Netherlands, ³ForFarmers, Lochem, the Netherlands
- 11:00 AM 264 **Effects of Dakota Gold and Conventional Distiller's Dried Grains with Solubles on Wean-to-Finish Growth Performance and Carcass Characteristics of Pigs Fed Diets Provided as Pellets or in a Meal Form.**
D. A. Rodriguez, S. A. Lee, and H. H. Stein, University of Illinois at Urbana-Champaign*
- 11:15 AM 265 **Standardized Ileal Digestibility of Amino Acids in Three Sources of Hybrids of Rye and in Barley, Wheat, and Corn Fed to Growing Pigs.**
M. L. McGhee and H. H. Stein, University of Illinois at Urbana-Champaign*
- 11:30 AM 266 **Growth Performance of Weaned Pigs Fed Raw, Cold-Pelleted, Steam-Pelleted, or Extruded Field Pea.**
J. Hugman¹, E. Beltranena², J. K. Htoo³, and R. T. Zijlstra⁴, ¹University of Alberta, Edmonton, AB, Canada, ²Alberta Agriculture and Forestry, Edmonton, AB, Canada, ³Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany, ⁴Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada
- 11:45 AM 267 **Young Scholar Presentation: Nutritional Value of Rice Coproducts Fed to Pigs.**
G. A. Casas^{1,2} and H. H. Stein², ¹Universidad Nacional de Colombia, Bogota, Colombia, ²University of Illinois at Urbana-Champaign

RUMINANT NUTRITION I: GROWING CATTLE

Chair: Mary E. Drewnoski, University of Nebraska-Lincoln

Sponsor:

8:30 AM – 12:15 PM

202

- 8:30 AM 408 **Evaluation of the Effect of Intake on Methane Production in Growing Cattle Fed Forage-Based Diets.**
T. M. Winders, B. M. Boyd, F. H. Hilscher, R. R. Stowell, S. C. Fernando, and G. E. Erickson, University of Nebraska-Lincoln*

- 8:45 AM 409 **Late Summer Planted Oat–Brassica Forage Quality and Change during Winter.**
M. E. Lenz¹, J. L. Cox¹, K. E. Hales², H. C. Wilson¹, and M. E. Drewnoski¹, ¹University of Nebraska–Lincoln, ²USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE
- 9:00 AM 410 **Growing Performance and Metabolism of Steers Fed Increasing Inclusions of Condensed Distiller’s Solubles in Forage-Based Diets.**
B. H. Hansen, Z. E. Carlson, R. G. Bondurant, M. L. Jolly-Breithaupt, F. H. Hilscher, G. E. Erickson, and J. C. MacDonald, University of Nebraska–Lincoln*
- 9:15 AM 411 **Effect of Isolated Nutrient Components of Modified Distiller’s Grains plus Solubles on Digestibility and Digestible Energy in Growing Diets.**
T. M. King, M. L. Jolly-Breithaupt, H. C. Wilson, G. E. Erickson, and J. C. MacDonald, University of Nebraska–Lincoln*
- 9:30 AM 412 **Steer Performance Grazing Corn Residue and Supplemented with Modified Distiller’s Grains plus Solubles with or without Urea.**
R. M. Jones, R. G. Bondurant, F. H. Hilscher, and J. C. MacDonald, University of Nebraska–Lincoln*
- 9:45 AM **Break**
- 10:00 AM 413 **The Effect of Harvest Method and Ammoniation of Corn Residue on Growing Calf Performance.**
A. C. Conway, R. G. Bondurant, J. C. MacDonald, T. J. Klopfenstein, and M. E. Drewnoski, University of Nebraska–Lincoln*
- 10:15 AM 414 **Estimates of Botanical Composition of Diets from Analyses of Chemical Components or Near-Infrared Spectroscopy among Cattle Fed Binary Mixtures of Cornstalk and Noncornstalk Residue.**
E. A. Petzel¹, A. J. Smart², E. A. Bailey³, J. A. Walker¹, C. L. Wright¹, J. E. Held¹, and D. W. Brake¹, ¹Department of Animal Science, South Dakota State University, Brookings, ²Department of Natural Resource Management, South Dakota State University, Brookings, ³Division of Animal Sciences, University of Missouri, Columbia
- 10:30 AM 415 **Effect of Supplemental Chromium on the Growth Performance and Health of Stocker/Grower Cattle.**
K. L. Herkelman¹, R. E. Hall¹, P. M. Walker², and J. L. Veracini², ¹Cooperative Research Farms, Richmond, VA, ²Illinois State University, Normal

- 10:45 AM 416 **Economics of Field Pea Supplementation for Cattle Grazing Crested Wheat Grass.**
*B. C. Troyer^{*1}, H. L. Greenwell¹, A. K. Watson¹, J. C. MacDonald¹, and K. H. Jenkins², ¹University of Nebraska–Lincoln, ²University of Nebraska–Scottsbluff*
- 11:00 AM 417 **Evaluation of Two Grass-Based Implants in a Short-Season Summer Grazing Management Practice.**
*J. Farney^{*1} and M. E. Corrigan², ¹Kansas State University, Parsons, ²Merck Animal Health, De Soto, KS*
- 11:15 AM 418 **Economics of Creep Feeding a Spring Calving Beef Herd in the Nebraska Sandhills.**
D. L. Broadhead^{}, M. Stockton, L. A. Stalker, J. A. Musgrave, and R. N. Funston, University of Nebraska West Central Research and Extension Center, North Platte*
- 11:30 AM 419 **The Nebraska Ranch Practicum: A Holistic Approach to Beef and Forage Systems.**
*S. A. Springman¹, D. C. Adams¹, B. L. Plugge², J. D. Volesky¹, T. M. Walz¹, and R. N. Funston^{*1}, ¹University of Nebraska West Central Research and Extension Center, North Platte, ²Nebraska Extension, Kearney, NE*
- 11:45 AM 420 **Source- and Age-Verified Lots of Beef Calves Sold for a Premium via Summer Video Auction from 2010 through 2017.**
*E. D. McCabe^{*1}, M. E. King¹, K. E. Fike¹, K. L. Hill², G. M. Rogers³, and K. G. Odde¹, ¹Kansas State University, Manhattan, ²Merck Animal Health, Kaysville, UT, ³Grassy Ridge Consulting, Aledo, TX*
- Noon 421 **Trends in the Percentage of Lots of Beef Calves Qualifying for Various Health Programs When Sold via Summer Video Auctions from 1995 through 2017.**
*E. D. McCabe¹, M. E. King¹, K. E. Fike¹, K. L. Hill², G. M. Rogers³, and K. G. Odde^{*1}, ¹Kansas State University, Manhattan, ²Merck Animal Health, Kaysville, UT, ³Grassy Ridge Consulting, Aledo, TX*

PHYSIOLOGY I: CATTLE

Chair: Allison M. Meyer, University of Missouri

Sponsor:

8:30 AM – 11:00 AM

207

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 371 **Effect of Manipulating Progesterone before Timed Artificial Insemination on Reproductive and Endocrine Parameters in High-Producing Dairy Cows.**
*P. D. Carvalho^{*1}, V. G. Santos¹, H. P. Fricke¹, A. M. Niles², L. L. Hernandez¹, and P. M. Fricke², ¹Department of Dairy Science, University of Wisconsin–Madison, ²University of Wisconsin–Madison*

- 8:50 AM 372 **Effects of a Late-Gestation Forage System on Dam and Subsequent Progeny Performance.**
*A. C. Lansford**, *J. A. Musgrave*, and *R. N. Funston*, *University of Nebraska West Central Research and Extension Center, North Platte*
- 9:05 AM 373 **The Effects of Estrus on Dry Matter Intake and Feeding Behavior in Beef Heifers.**
S. R. Underdahl¹, *A. B. P. Fontoura¹*, *L. L. Hulsman Hanna¹*, *K. A. Vonnahme¹*, *K. C. Swanson¹*, *K. A. Ringwall²*, *T. C. Gilbery¹*, and *C. R. Dahlen¹*, *¹Department of Animal Sciences, North Dakota State University, Fargo, ²North Dakota State University Dickinson Research Extension Center, Dickinson*
- 9:20 AM 374 **Effects of Hydroxy Trace Mineral Supplementation on Gain and Reproductive Performance in Beef Heifers.**
*S. A. Springman*¹*, *T. L. Meyer²*, *M. E. Drewnoski¹*, and *R. N. Funston²*, *¹University of Nebraska–Lincoln, ²University of Nebraska West Central Research and Extension Center, North Platte*
- 9:35 AM 375 **The Nine-Day Controlled Internal Drug Release–Prostaglandin Protocol: Evaluation of Synchrony of Estrus, Endocrine Parameters, Ovarian Dynamics, and Pregnancy Rates to Artificial Insemination in Comparison with the Seven-Day CO-Synch + Controlled Internal Drug Release Protocol.**
*J. M. Thomas**, *J. W. C. Locke*, *M. R. Ellersieck*, *M. F. Smith*, and *D. J. Patterson*, *University of Missouri, Columbia*
- 9:50 AM **Break**
- 10:05 AM 376 **Effects of Pre- and Postinsemination Maternal Plane of Nutrition on Peripheral and Uterine Luminal Fluid Metabolites.**
E. E. Beck¹, *R. T. Douglas¹*, *J. J. J. Rich¹*, *E. J. Northrop¹*, *S. D. Perkins¹*, *T. W. Geary²*, *G. A. Perry¹*, and *J. A. Walker¹*, *¹Department of Animal Science, South Dakota State University, Brookings, ²USDA–ARS Fort Keogh Livestock and Range Research Laboratory, Miles City, MT*
- 10:20 AM 377 **Role of Epididymal Proteins and Mannose on Sperm Longevity.**
*S. D. Perkins**, *E. J. Northrop*, *J. J. J. Rich*, and *G. A. Perry*, *Department of Animal Science, South Dakota State University, Brookings*
- 10:35 AM 378 **Influence of Sexcel (Gender Ablation Technology) Gender-Skewed Semen in Fixed-Time Artificial Insemination of Beef Cows and Heifers.**
*G. A. Perry*¹*, *J. A. Walker¹*, *J. J. J. Rich¹*, *E. J. Northrop¹*, *S. D. Perkins¹*, *E. E. Beck¹*, *M. D. Sandbulte²*, and *F. B. Mokry³*, *¹Department of Animal Science, South Dakota State University, Brookings, ²ABS Global, DeForest, WI, ³Genus plc, DeForest, WI*
- 10:50 AM **Concluding Remarks**

EXTENSION – SWINE SYMPOSIUM

Chair: Michael J. Rincker, DPI GLOBAL

Sponsor:

9:35 AM – 11:45 AM

212

- 9:35 AM 102 **Means to Prevent Microbial Enteric Pathogens Transmission through Animal Food.**
*X. Li**, *L. Benjamin*, *D. Edwards*, and *D. McChesney*, *U.S. Food and Drug Administration, Rockville, MD*
- 10:05 AM 103 **Practical Strategies to Maintain Feed Safety.**
*C. K. Jones**, *Kansas State University, Manhattan*
- 10:35 AM 104 **Evaluation of the Survival of Viral Pathogens in Contaminated Feed Ingredients Using Transboundary Shipment Models.**
*S. Dee*¹, *M. C. Niederwerder*², and *D. Dieß*³, ¹*Pipestone Systems, Pipestone, MN*, ²*Department of Diagnostic Medicine/Pathobiology, Kansas State University, Manhattan*, ³*Animal Disease Research and Diagnostic Laboratory, South Dakota State University, Brookings*
- 11:05 AM 105 **A Review of Medium-Chain Fatty Acids and Their Recent Role in Feed Safety.**
*R. A. Cochrane*¹, *R. Amachawadi*¹, *S. Remfry*¹, *A. Lerner*¹, *J. Gebhardt*¹, *T. Nagaraja*¹, *M. Niederwerder*¹, *J. Woodworth*¹, *S. Dritz*¹, *C. Jones*¹, *J. Pluske*², ¹*Kansas State University, Manhattan*, ²*Murdoch University, Australia*
- 11:35 AM **Concluding Remarks**

EXTENSION – BEEF/SMALL RUMINANT SYMPOSIUM

Chair: Beth Doran, Iowa State University Extension

Sponsor:

1:15 PM – 5:00 PM

203/204

- 1:15 PM **Welcoming Remarks**
- 1:20 PM K1 **Klopfenstein Lecture: Building profitable management systems for young beef females.**
T. Patterson, *Padlock Ranch Company, Ranchester, WY*
- 1:50 PM 68 **National Beef Quality Audit – 2016.**
*D. L. VanOverbeke*¹ and *J. Fulton*², ¹*Oklahoma State University, Stillwater*, ²*National Cattlemen's Beef Association, Denver, CO*
- 2:35 PM 69 **Challenges and Opportunities in Marketing Dairy Beef.**
*T. E. Lawrence**, *West Texas A&M University, Canyon*
- 3:20 PM **Break**

- 3:30 PM 70 **Ensuring Beef's Domestic Market.**
J. Butler, U.S. Roundtable for Sustainable Beef, Denver, CO*
- 4:15 PM 71 **Marketing Beef Beyond the United States Border: What Are the Expectations?**
T. Arp, U.S. Meat Export Federation, Denver, CO*

**EQUINE SYMPOSIUM:
INNOVATIVE APPROACHES TO REACH EQUINE AUDIENCES**

Chair: Teresa Douthit, Kansas State University

Sponsor:

1:45 PM – 5:25 PM

207

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 56 **Goals, Objectives, and Student Learning Objectives – Building Effective Assessment Plans in Equine Science.**
K. D. Bump, Cornell University Cooperative Extension, Morrisville, NY*
- 2:25 PM 57 **Engage Classroom and Extension Audiences to Maximize Learning Outcomes.**
*C. H. Wood*¹ and A. S. Griffin², ¹University of Kentucky, Lexington, ²eXtension Foundation, Owenton, KY*
- 3:00 PM 58 **Utilizing Social Media to Enhance Your Equine Program.**
T. A. Fabus, Michigan State University, East Lansing*
- 3:35 PM 59 **Effects of Casein and Varying Protein Sources on In Vitro Fermentation of Forages by Mixed Cecal Microorganisms.**
M. Y. Halpin, Kansas State University, Manhattan*
- 3:50 PM 60 **Effect of Sodium Caseinate on Equine Hindgut Fermentation and Fiber Digestion.**
K. V. Jordan, J. S. Drouillard, T. L. Douthit, and J. M. Lattimer, Kansas State University, Manhattan*
- 4:05 PM 61 **Digestibility of Calcium Salt of Fatty Acids and Soybean Oil in the Equine.**
L. K. Fehlberg, Kansas State University, Manhattan*
- 4:20 PM 62 **Immunomodulation of Supplemental Omega-3 Fatty Acids in Horses Delivered via a Commercially Available Molasses Lick Block.**
T. M. Horne, Kansas State University, Manhattan*
- 4:35 PM 63 **Characterization of Foal Fecal Microbiome from Birth to Weaning and the Relationship to Mare Milk and Mare Feces.**
E. Jacquay, L. Zeglin, J. Lillich, E. Jones, and J. Kouba, Kansas State University, Manhattan*
- 4:50 PM 64 **The Backyard Horse Owner and the Equine Industry at Large.**
R. H. Raub, Independent, Waseca, MN*

BREEDING AND GENETICS SYMPOSIUM: HOST VERSUS MICROBIOME: IS IT GENETIC, ENVIRONMENTAL, OR GXE?

Chair: Lauren Hulsman Hanna, North Dakota State University

Sponsor:

1:45 PM – 4:45 PM

205/206

- 1:45 PM Welcoming Remarks
- 1:50 PM 26 **Unraveling the Microbiomes Role in the Expression of Complex Host Phenotypes Requires a Biogeographical Understanding.**
*C. J. Yeoman**, Montana State University, Bozeman
- 2:20 PM 27 **Composition and In Situ Gene Expression of Rumen Wall Microbial Communities.**
*S. Schmitz-Esser**, Department of Animal Science, Iowa State University, Ames
- 2:50 PM Break
- 3:05 PM 28 **The Relationship of Host Genetics and the Microbiome in Colon Cancer.**
*B. L. Hurwitz**, University of Arizona, Tucson
- 3:35 PM 29 **Can We Select for an Improved Microbiome?**
*R. Bergsma^{*1}, L. M. G. Verschuren², and E. F. Knol³*, ¹Topigs Norsvin Research Center B.V., Beuningen, the Netherlands, ²Wageningen Livestock Research, Wageningen, the Netherlands, ³TOPIGS Research Center IPG, Beuningen, the Netherlands
- 4:05 PM 30 **Beef Cattle Metagenomics: Predicting Traits from the Inside Out.**
*J. M. Reecy**, Iowa State University, Ames
- 4:35 PM Concluding Remarks

EXTENSION: DAIRY SYMPOSIUM:

FEEDING DAIRY CALVES AND HEIFERS IN THE MIDWEST

Chair: Bradley J. Heins, University of Minnesota West Central Research and Outreach Center

Sponsor:

1:45 PM – 4:55 PM

210/211

- 1:45 PM Welcoming Remarks
- 1:50 PM 73 **Utilization of Coproducts from the Biofuels Industry as Alternative Protein Sources in Growing Dairy Heifer Diets.**
*J. L. Anderson^{*1}, A. K. Manthey², R. D. Lawrence¹, and K. Rodriguez-Hernandez^{1,3}*, ¹Department of Dairy and Food Science, South Dakota State University, Brookings, ²Hubbard Feeds, Mankato, MN, ³CIRNOC-INIFAP, Matamoros, Mexico

- 2:30 PM 74 **Automated Milk Feeders for Preweaned Dairy Calves in the Upper Midwest United States.**
*M. I. Endres**, University of Minnesota, Saint Paul
- 3:10 PM **Break**
- 3:25 PM 75 **Relationships between Early-Life Growth and Protein and Energy Intake with First-Lactation Performance of Holstein Dairy Cows.**
B. J. Heins¹, H. Chester-Jones², D. Ziegler², and N. Broadwater³,
¹University of Minnesota West Central Research and Outreach Center, Morris, ²University of Minnesota Southern Research and Outreach Center, Waseca, ³University of Minnesota Extension, Rochester
- 4:05 PM 76 **Sustainability and Efficiency of Dairy Production Is Affected by Crops.**
J. L. Vicini¹ and G. McNunn², *¹Monsanto Company, St. Louis, MO, ²EFC Systems, Brentwood, TN*
- 4:45 PM **Concluding Remarks**

**ANIMAL BEHAVIOR, HOUSING, AND WELFARE SYMPOSIUM:
MANAGING HEAT STRESS, SWINE WELFARE,
AND WELFARE MEASUREMENT**

Chair: Kurt Vogel, University of Wisconsin–River Falls

Sponsor:

1:45 PM – 5:00 PM

Grand Ballroom South

- 1:45 PM **Welcoming Remarks**
- 1:50 PM 8 **Measurements of Animal Behavior and Welfare as Related to Animal Growth and Performance.**
*W. R. Stricklin**, University of Maryland, College Park
- 2:30 PM 9 **Causes and Mitigation Strategies for Mortality in Neonatal and Weaned Piglets.**
*E. Baxter**, Animal Behaviour and Welfare, Animal and Veterinary Sciences, SRUC, Edinburgh, United Kingdom
- 3:10 PM **Break**
- 3:20 PM 10 **Animal Welfare Research Perspectives and Opportunities for the United States Swine Industry.**
*S. Webb**, National Pork Board, Des Moines, IA
- 4:00 PM 11 **Impact of Heat Stress on Livestock and Mitigation Strategies to Improve Productivity and Well-Being.**
*J. S. Johnson**, USDA–ARS Livestock Behavior Research Unit, West Lafayette, IN
- 4:40 PM 12 **The Canadian Pork Industry’s Perspective on Swine Welfare Research.**
*M. Fynn**, Manitoba Pork, Winnipeg, MB, Canada

EXTENSION – SWINE

Chair:

Sponsor:

**1:45 PM – 5:30 PM
201**

- 1:45 PM 106 **Swine Modeling: An Integrated Approach to Providing Complete Nutritional Solutions.**
*D. Woods**, Nutreco Canada, Guelph, ON, Canada
- 2:00 PM 107 **Effects of Dietary Chelated Minerals and Methionine during Rearing on Gilt Lameness, Growth, and Performance before and after Entering Production.**
L. Fabà¹, D. Solà-Oriol¹, M. D. Tokach², J. Gasa¹, and E. Varella³, ¹Animal Nutrition and Welfare Service, Department of Animal and Food Science, Universitat Autònoma de Barcelona, Bellaterra, Spain, ²Kansas State University, Manhattan, ³Tecnología & Vitaminas, S.L., Alforja, Spain
- 2:15 PM 108 **Evaluation of Floor Space Allowance for Group-Housed Gestating Sows: Application of Allometric Principles.**
Y. Li¹, S. Cui¹, X. Yang², H. Zhang¹, S. K. Baidoo², and L. J. Johnston¹, ¹West Central Research and Outreach Center, University of Minnesota, Morris, ²Southern Research and Outreach Center, University of Minnesota, Waseca
- 2:30 PM 109 **Electrical and Thermal Energy Consumption in Midwest Commercial Swine Facilities.**
K. T. Sharpe¹, M. H. Reese¹, E. S. Buchanan¹, J. E. Tallaksen¹, K. A. Janni², and L. J. Johnston¹, ¹West Central Research and Outreach Center, University of Minnesota, Morris, ²Department of Bioproducts and Biosystems Engineering, University of Minnesota, Saint Paul
- 2:45 PM 110 **Fertility Response of Sows Receiving Oxytocin, Lecirelin, and Caffeine in Semen.**
R. Manjarin¹, J. Ngula², F. Martinez-Pastor³, B. Alegre², T. Brown¹, J. Piñan², R. N. Kirkwood¹, and J. C. D. de Tejerina², ¹California Polytechnic State University, San Luis Obispo, ²Department of Medicine, Surgery and Veterinary Anatomy, University of León, León, Spain, ³INDEGSAL, University of León, León, Spain, ⁴School of Animal and Veterinary Sciences, University of Adelaide, Roseworthy, SA, Australia
- 3:00 PM 111 **Fermentation of Soybean Meal Using a Novel *Bacillus subtilis* Isolate to Improve Nutritive Value in Growing Pigs.**
Y. Lu^{1,2}, N. Akhtar², C. Zhu², E. Kiarie², and J. Li², ¹Institute of Animal Husbandry and Veterinary Sciences, Shanghai Academy of Agricultural Sciences, Shanghai, China, ²Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada

- 3:15 PM 112 **Effects of Vitamin A, Tryptophan and Tre, and Omega-3 on Performance and Viral Load in Growing Gilts Challenged with Porcine Reproductive and Respiratory Syndrome Virus.**
*L. Fabà^{*1}, D. Solà-Oriol¹, M. D. Tokach², E. Mateu³, E. Varella⁴, and J. Gasa¹, ¹Animal Nutrition and Welfare Service, Department of Animal and Food Science, Universitat Autònoma de Barcelona, Bellaterra, Spain, ²Kansas State University, Manhattan, ³Centre de Recerca en Sanitat Animal (CRESA), Department of Animal Health and Anatomy, Universitat Autònoma de Barcelona, Bellaterra, Spain, ⁴Tecnología & Vitaminas, S.L., Alforja, Spain*
- 3:30 PM 113 **Implications of Piglet Birth Weight for Survival Rate, Subsequent Growth Performance, and Carcass Characteristics of Commercial Pigs.**
*Z. K. Zeng^{*1}, P. E. Urriola¹, J. R. Dunkelberger², J. M. Eggert², R. Vogelzang³, G. C. Shurson¹, and L. J. Johnston⁴, ¹Department of Animal Science, University of Minnesota, Saint Paul, ²Topigs Norsvin USA, Burnsville, MN, ³Topigs Norsvin Research Center, Beuningen, the Netherlands, ⁴West Central Research and Outreach Center, University of Minnesota, Morris*
- 3:45 PM 114 **Evaluation of Using Hand-Held Near-Infrared Spectroscopy for Pellet Fines and Moisture.**
*P. Wilcock^{*1}, C. Piotrowski², B. Haber³, B. C. Smith³, and A. Gahkani², ¹AB Vista, Marlborough, United Kingdom, ²Aunir, Towcester, United Kingdom, ³Iowa Select Farms, Iowa Falls, IA*
- 4:00 PM 115 **Rapid Determination of Proximates and Amino Acids in Corn Distiller's Grains Using Near-Infrared Spectroscopy.**
*A. Gahkani^{*1}, C. Piotrowski¹, B. Haber², P. Wilcock³, and C. Davies⁴, ¹Aunir, Towcester, United Kingdom, ²Iowa Select Farms, Iowa Falls, IA, ³AB Vista, Marlborough, United Kingdom, ⁴AB Vista, Plantation, FL*
- 4:15 PM 116 **The Impact of Evaporative Pad Cooling on Finishing Pig Performance.**
J. G. Wiegert^{}, M. T. Knauer, and S. B. Shah, North Carolina State University, Raleigh*
- 4:30 PM 117 **A Low Litter Birth Weight Phenotype Reduces the Retention Rate of Potential Replacement Gilts.**
*J. Patterson^{*1}, G. Foxcroft¹, N. Holden², M. Allerson², A. Hanson², E. Triemer², L. Bruner³, and J. C. Pinilla⁴, ¹University of Alberta, Edmonton, AB, Canada, ²Holden Farms Inc., Northfield, MN, ³Swine Veterinary Center, Saint Peter, MN, ⁴PIC, Hendersonville, TN*
- 4:45 PM 118 **Examining Factors that Influence Pig Quality Measured by Weaning Weight.**
C. E. Bruns^{}, R. J. Noel, B. M. McNeil, J. P. Sonderman, and T. A. Rathje, DNA Genetics, Columbus, NE*

5:00 PM 119 **Feed as a Vehicle for Porcine Reproductive and Respiratory Syndrome Virus Transmission and the Effects of Formaldehyde on Porcine Reproductive and Respiratory Virus in Feed: Proof of Concept.**
*L. Ochoa**, *L. Greiner*, and *T. Pacion*, *Carthage Innovative Swine Solutions, LLC, Carthage, IL*

5:15 PM 120 **Preslaughter Feed Acidification with Feed-Grade Sodium Formate Reduces Microbial Abundance in Finishing Pigs.**
*J. A. Jendza*¹, *H. Y. Chen*², and *A. Graham*³, ¹*BASF Corp., Florham Park, NJ*, ²*BASF SE, Lampertheim, Germany*, ³*Carthage Innovative Swine Solutions, LLC, Carthage, IL*

**RUMINANT NUTRITION II:
 FEEDLOT NUTRITION AND MANAGEMENT**

Chair: J. C. MacDonald, University of Nebraska–Lincoln

Sponsor:

1:45 PM – 5:15 PM

202

1:45 PM 422 **Young Scholar Presentation: The Effect of Corn Silage Harvest, Hybrid, and Inclusion Level on Performance in Growing and Finishing Beef Cattle.**
*F. H. Hilscher**, *A. K. Watson*, *J. C. MacDonald*, *T. J. Klopfenstein*, and *G. E. Erickson*, *University of Nebraska–Lincoln*

2:15 PM 423 **Effects of Varying Inclusions of Corn Silage and Hybrid on Finishing Performance of Steers.**
*L. A. Ovinge*¹, *F. H. Hilscher*¹, *B. M. Boyd*¹, *T. J. Klopfenstein*¹, *J. N. Anderson*², and *G. E. Erickson*¹, ¹*University of Nebraska–Lincoln*, ²*Mycogen Seeds, Indianapolis, IN*

2:30 PM 424 **Effects of Kernel Processing of Corn Silage with and without the Brown Midrib Trait on Nutrient Digestion by Finishing Steers.**
*L. A. Ovinge**, *F. H. Hilscher*, *C. J. Bittner*, *B. M. Boyd*, *H. C. Wilson*, *M. L. Jolly-Breithaupt*, *J. C. MacDonald*, and *G. E. Erickson*, *University of Nebraska–Lincoln*

2:45 PM 425 **Evaluation of Distiller’s Grains that Have Undergone a Fiber Separation Process on Performance and Carcass Characteristics in Finishing Diets.**
*S. A. Garland*¹, *B. M. Boyd*¹, *F. H. Hilscher*¹, *J. C. MacDonald*¹, *R. A. Mass*², and *G. E. Erickson*¹, ¹*University of Nebraska–Lincoln*, ²*ICM, Inc., Colwich, KS*

3:00 PM **Break**

- 3:15 PM 426 **Effects of Urea and Distiller's Inclusion in Finishing Diets on Steer Performance and Carcass Characteristics.**
B. M. Boyd¹, J. C. MacDonald¹, G. E. Erickson¹, and M. K. Luebke², ¹University of Nebraska–Lincoln, ²University of Nebraska–Scottsbluff
- 3:30 PM 427 **Utilization of Coproducts as an Alternative to Forage in Adapting Feedlot Cattle to Finishing Diets.**
D. M. Crawford and J. C. McCann, University of Illinois at Urbana–Champaign*
- 3:45 PM 428 **The Effect of Protein Concentrations in Finishing Diets on Growth Performance and Carcass Characteristics of Steers.**
L. Gomes Sitorski, A. B. P. Fontoura, F. E. Keomanivong, M. L. Bauer, T. C. Gilbery, S. R. Underdahl, C. R. Dahlen, and K. C. Swanson, North Dakota State University, Fargo*
- 4:00 PM 429 **Impact of Feeding a Corn Hybrid Containing Alpha Amylase in Finishing Cattle Diets on Performance and Carcass Characteristics.**
M. L. Jolly-Breithaupt¹, C. J. Bittner¹, F. H. Hilscher¹, G. E. Erickson¹, J. C. MacDonald¹, and M. K. Luebke², ¹University of Nebraska–Lincoln, ²University of Nebraska, Scottsbluff
- 4:15 PM 430 **Impact of a Natural Feed Additive or Tylosin on Finishing Beef Cattle Performance and Liver Abscess Rate.**
H. C. Wilson, F. H. Hilscher, B. M. Boyd, J. C. MacDonald, and G. E. Erickson, University of Nebraska–Lincoln*
- 4:30 PM 431 **Effects of Feeding a Novel Amino Acid–Complexed Trace Mineral Supplement on Productivity and Digital Dermatitis Mitigation in Growing–Finishing Feedlot Heifers.**
E. Loe, Midwest PMS LLC, Firestone, CO*
- 4:45 PM 432 **Evaluation of the Effect of Corn Oil on Methane Production in Finishing Cattle.**
T. M. Winders, B. M. Boyd, F. H. Hilscher, R. R. Stowell, S. C. Fernando, and G. E. Erickson, University of Nebraska–Lincoln*
- 5:00 PM 433 **Impact of Shade in Beef Feed Yards on Performance, Body Temperature, and Heat Stress Measures.**
B. A. Melton¹, B. M. Boyd¹, C. N. Macken², J. C. MacDonald¹, and G. E. Erickson¹, ¹University of Nebraska–Lincoln, ²Performance Plus Liquids, Inc., Grand Island, NE

**GROWTH, DEVELOPMENT, MUSCLE BIOLOGY,
AND MEAT SCIENCE**

Chair: Dustin A. Mohrhauser, Smithfield Foods

Sponsor:

1:45 PM – 4:30 PM

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- 1:45 PM **Welcoming Remarks**
- 1:50 PM 189 **Young Scholar Presentation: Technology in Livestock Production: Use of Production Technologies to Improve the Sustainability of Meat Production.**
B. N. Harsh^{}, J. C. McCann, A. C. Dilger, and D. D. Boler, University of Illinois at Urbana–Champaign*
- 2:20 PM 190 **Zinc Injection as a Novel Castration Method in Beef Bulls: Effects on Carcass Traits and Consumer Acceptability.**
J. J. Ball¹, E. B. Kegley¹, T. E. Lawrence², S. L. Roberts², J. G. Powell¹, and J. T. Richeson², ¹Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, ²West Texas A&M University, Canyon
- 2:35 PM 191 **The Effects of the Lipex Finishing Diet Regimen on Pork Quality and Color Stability.**
S. R. Davis¹, T. A. Houser¹, T. G. O’Quinn¹, L. N. Drey¹, C. B. Paulk¹, D. E. Nuttelman², J. M. Coulter², and J. M. Gonzalez¹, ¹Kansas State University, Manhattan, ²Omega 3 Family Farms, Columbus, NE
- 2:50 PM **Break**
- 3:05 PM 192 **Transcriptome Analysis for Pork Color – The Ham Halo Effect in Biceps Femoris.**
D. J. Nonneman^{}, B. N. Keel, and D. A. King, USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE*
- 3:20 PM 193 **Allometric Examination of Visceral Organ Size, Carcass Characteristics, and Blood Clinical Chemistry of Pigs Fed Twenty Percent Distiller’s Dried Grains with Solubles Diets from Thirty to One Hundred Fifty Kilograms.**
N. Lu¹, Y. D. Jang², D. Wang¹, H. J. Monegue¹, S. Adedokun¹, G. Rentfrow¹, and M. D. Lindemann¹, ¹University of Kentucky, Lexington, KY, ²University of Wisconsin–River Falls
- 3:35 PM 194 **Cyclic Heat Stress Affects Carcass Characteristics and Fresh Pork Quality of Pigs Despite Zinc Supplementation at a High or Low Level from Inorganic and Organic Sources.**
J. A. Feldpausch¹, K. M. Mills¹, A. W. Duttlinger¹, E. A. Ford¹, S. M. Zuelly¹, J. S. Radcliffe¹, Z. J. Rambo², and B. T. Richert¹, ¹Purdue University, West Lafayette, IN, ²Zinpro Corporation, Eden Prairie, MN

3:50 PM 195 **Young Scholar Presentation: Pork Quality Considerations for Swine Nutrition.**
M. F. Overholt, D. D. Boler, and A. C. Dilger, University of Illinois at Urbana–Champaign*

4:20 PM **Concluding Remarks**

**NONRUMINANT NUTRITION III:
 FEED ADDITIVES I: NURSERY**

**Chairs: Nicholas K. Gabler, Iowa State University
 and Oscar Rojas, Devenish Nutrition**

Sponsor:

1:45 PM – 5:00 PM

212

1:45 PM **Welcoming Remarks**

1:50 PM 282 **Effect of a Proprietary Blend of Medium-Chain Fatty Acids and Functional Components (Outpace), a Yeast-Based Product, or Their Combination on Weaned Pig Performance.**
B. Bass, R. A. Dvorak, and T. P. Karnezos, PMI Nutritional Additives, Shoreview, MN*

2:05 PM 283 **Effects of Sangrovit Extra on Apparent Ileal Digestibility of Amino Acids, Crude Protein, Acid Hydrolyzed Ether Extract, and Starch by Weanling Pigs Fed Corn–Soybean Meal Diets.**
C. M. Rundle and H. H. Stein, University of Illinois at Urbana–Champaign*

2:20 PM 284 **The Effects of Group Size and Subtherapeutic Antibiotic Alternatives on the Performance of Nursery Piglets: A Model for Feed Additive Evaluation.**

K. M. Olsen¹, N. K. Gabler¹, C. J. Rademacher², K. J. Schwartz², W. P. Schweer¹, and J. F. Patience¹, ¹Department of Animal Science, Iowa State University, Ames, ²Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames

2:35 PM 285 **Medium-Chain Fatty Acid Mitigation Activity against Porcine Epidemic Diarrhea Virus in Nursery Pig Diets after Forty Days of Storage.**

J. T. Gebhardt, J. C. Woodworth, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, C. K. Jones, and S. S. Dritz, Kansas State University, Manhattan*

2:50 PM **Break**

- 3:00 PM 288 **The Effects of *Lactobacillus acidophilus* Fermentation Products as an Alternative to Antibiotics.**
*J. P. Knapp*¹, *J. E. Wells*², *C. V. Maxwell*¹, *T. Tsai*¹, *L. M. Durso*³, and *W. T. Oliver*², ¹*Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville,* ²*USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE,* ³*USDA-ARS Agroecosystem Management Research Unit, Lincoln, NE*
- 3:00 PM 286 **Evaluation of the Lactose Level and Organic Acid Inclusion in Newly Weaned Pigs.**
*A. Graham*¹, *L. Greiner*¹, *B. Knopf*¹, *M. A. D. Goncalves*², *W. Cast*³, and *U. A. D. Orlando*², ¹*Carthage Innovative Swine Solutions, LLC, Carthage, IL,* ²*Genus PIC, Hendersonville, TN,* ³*Princeton, MO*
- 3:15 PM 287 **Effect of Direct-Fed Microbial Blends on Weaned Pigs Challenged with F18 Enterotoxigenic *Escherichia coli*.**
*S. L. Becker*¹, *Q. Y. Li*¹, *E. R. Burrough*², and *J. F. Patience*¹, ¹*Department of Animal Science, Iowa State University, Ames,* ²*Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames*
- 3:30 PM 286 **Evaluation of the Lactose Level and Organic Acid Inclusion in Newly Weaned Pigs.**
*A. Graham*¹, *L. Greiner*¹, *B. Knopf*¹, *M. A. D. Goncalves*², *W. Cast*³, and *U. A. D. Orlando*², ¹*Carthage Innovative Swine Solutions, LLC, Carthage, IL,* ²*Genus PIC, Hendersonville, TN,* ³*Princeton, MO*
- 3:45 PM 289 **Evaluation of a Phytogetic Blend on Nursery Pig Growth and Nutrient Digestibility.**
*S. M. Mendoza*¹, *G. R. Murugesan*¹, *E. G. Hendel*¹, *S. Stelzhammer*², *E. T. Helm*³, and *N. K. Gabler*³, ¹*BIOMIN America Inc., Kansas City, KS,* ²*BIOMIN Holding GmbH, Getzersdorf, Austria,* ³*Department of Animal Science, Iowa State University, Ames*
- 4:00 PM 290 **Evaluation of an Organic Acid Blend on Gut Morphology and Nitrogen Retention in Nursery Pigs.**
*G. R. Murugesan*¹, *S. M. Mendoza*¹, *E. G. Hendel*¹, *A. Tacconi*², and *N. K. Gabler*³, ¹*BIOMIN America Inc., Kansas City, KS,* ²*BIOMIN Holding GmbH, Getzersdorf, Austria,* ³*Department of Animal Science, Iowa State University, Ames*
- 4:15 PM 291 **Effect of Prebiotic, Fatty Acid, and Copper and Zinc Ingredients on Nursery Pig Performance.**
*C. M. De Mille*¹, *S. M. Curry*², *N. K. Gabler*³, and *B. J. Kerr*⁴, ¹*Iowa State University, Ames,* ²*Oak Ridge Institute for Science and Education, Oak Ridge, TN,* ³*Department of Animal Science, Iowa State University, Ames,* ⁴*USDA-ARS, Ames, IA*

- 4:30 PM 292 **Effect on Nursery Growth Performance and Health Status of an Antibiotic-Free Feeding Program, with or without Polyclonal Egg Immunoglobulin Y Antibodies, Compared with a Program with Antibiotics.**
M. R. Bible¹, S. J. England¹, K. T. Soltwedel¹, T. M. Fakler¹, B. Mitteness², J. Y. Jacela¹, and F. B. Sandberg¹, ¹Furst-McNess Company, Freeport, IL, ²Camas Inc., Le Center, MN
- 4:45 PM 293 **Supplemental Effects of Nucleotides on Gut Health and Growth of Newly Weaned Pigs.**
K. Jang^{} and S. W. Kim, North Carolina State University, Raleigh*

NONRUMINANT NUTRITION IV: AMINO ACID REQUIREMENTS

Chairs: Marcio A. D. Goncalves, Genus PIC and

Caroline Gonzalez, Evonik

Sponsor:

1:45 PM – 4:45 PM

214

- 1:45 PM 307 **Optimum Dietary Standardized Ileal Digestible Lysine and Crude Protein for Growth and Carcass Performance in Finishing Pigs after One Hundred Kilograms Body Weight.**
J. A. Soto^{}, M. D. Tokach, S. S. Dritz, J. C. Woodworth, J. M. DeRouche, and B. D. Goodband, Kansas State University, Manhattan*
- 2:00 PM 308 **Determination of Standardized Ileal Digestible Lysine: Metabolizable Energy Requirements in One Hundred Twenty-Nine– to One Hundred Forty-Nine–Kilogram Pigs.**
U. A. D. Orlando¹, R. Hinson², M. Goncalves¹, A. D. Woodward², and N. R. Augspurger², ¹Genus PIC, Hendersonville, TN, ²United Animal Health, Sheridan, IN
- 2:15 PM 309 **Empirical Calibration of Ideal Standardized Ileal Digestible Isoleucine-to-Lysine Profile in Growing Pigs (Seventy to One Hundred Two Kilograms Body Weight).**
C. E. Zier-Rush¹, K. D. Haydon², A. J. Elsbernd³, D. S. Rosero¹, and R. D. Boyd¹, ¹The Hanor Company, Inc., Franklin, KY, ²CJ America, Chicago, IL, ³The Hanor Company, Inc., Ames, IA
- 2:30 PM 310 **Effects of Standardized Ileal Digestible Threonine: Lysine Ratio on Nursery Pig Performance.**
*J. de Jong¹, C. R. Neill¹, M. A. D. Goncalves^{*2}, U. A. D. Orlando², and M. Culbertson², ¹Pipestone Systems, Pipestone, MN, ²Genus PIC, Hendersonville, TN*
- 2:45 PM 311 **Determining the Impact of Increasing Standardized Ileal Digestible Lysine for Primiparous and Multiparous Sows during Lactation.**
K. M. Gourley¹, G. E. Nichols¹, J. A. Sonderman², Z. T. Spencer³, J. C. Woodworth¹, M. D. Tokach¹, J. M. DeRouche¹, S. S. Dritz¹, R. D. Goodband¹, S. J. Kitt², and E. W. Stephenson², ¹Kansas State University, Manhattan, ²Pillen Family Farms, Columbus, NE, ³DNA Genetics, Columbus, NE

- 3:00 PM 312 **Lysine Requirement of Lactating Sows – Revisited.**
A. Graham¹, L. Greiner¹, M. A. D. Goncalves², U. A. D. Orlando², and K. J. Touchette³, ¹Carthage Innovative Swine Solutions, LLC, Carthage, IL, ²Genus PIC, Hendersonville, TN, ³Ajinomoto Heartland, Inc., Chicago, IL
- 3:15 PM 313 **Effects of Standardized Ileal Digestible Lysine Intake during Lactation on Litter and Reproductive Performance of Gilts.**
E. Bruder¹, G. Gourley¹, and M. Goncalves², ¹Gourley Research Group, LLC, Webster City, IA, ²Genus PIC, Hendersonville, TN
- 3:30 PM 314 **Effects of Standardized Ileal Digestible Lysine Levels Fed to Gilts during Lactation on the Postweaning Growth, Feed Conversion, and Carcass Quality of Their Progeny.**
G. Gourley¹, E. Bruder¹, S. Jungst², and M. Goncalves², ¹Gourley Research Group, LLC, Webster City, IA, ²Genus PIC, Hendersonville, TN
- 3:45 PM 315 **Effects of Increasing Standardized Ileal Digestible Lysine during Gestation on Growth and Reproductive Performance of Gilts and Sows under Commercial Conditions.**
L. L. Thomas¹, L. K. Herd¹, B. D. Goodband¹, S. S. Dritz¹, M. D. Tokach¹, J. C. Woodworth¹, J. M. DeRouchey¹, M. A. D. Goncalves², and D. B. Jones³, ¹Kansas State University, Manhattan, ²Genus PIC, Hendersonville, TN, ³Archer Daniels Midland Company, Decatur, IL
- 4:00 PM 316 **Impact of Dietary Protein on Yield and Composition of Sow Milk.**
C. K. Højgaard^{1,2}, T. S. Bruun¹, and P. K. Theil², ¹SEGES Danish Pig Research Centre, Copenhagen, Denmark, ²Aarhus University, Tjele, Denmark
- 4:15 PM 317 **The Standardized Ileal Digestible Valine:Lysine Requirement in Lactating Sows.**
C. Boessen¹, A. Graham¹, L. Greiner¹, B. Knopf¹, K. J. Touchette², M. A. D. Goncalves³, and U. A. D. Orlando³, ¹Carthage Innovative Swine Solutions, LLC, Carthage, IL, ²Ajinomoto Heartland, Inc., Chicago, IL, ³Genus PIC, Hendersonville, TN
- 4:30 PM 318 **Feeding a Diet with a Near-Ideal Amino Acid Profile Improves Amino Acid Utilization Efficiency for Milk Production in Sows.**
S. Zhang¹, M. Qiao², J. Liesman¹, and N. L. Trottier¹, ¹Michigan State University, East Lansing, ²Institute of Animal Husbandry and Veterinary Science, Hubei Academy of Agricultural Sciences, Wuhan, MI, China

NONRUMINANT NUTRITION V: FIBER/ENZYMES

**Chairs: Pedro E. Urriola, University of Minnesota
and Laura Merriman, ADM**

Sponsor:

1:45 PM – 5:05 PM

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- 1:45 PM **Welcoming Remarks**
- 1:50 PM 294 **Diet Nutrient Digestibility and Growth Performance of Weaned Pigs Fed Hulled or Hull-less Barley Differing in Fermentable Starch or Fiber to Replace Wheat.**
*L. F. Wang¹, H. Zhang¹, E. Beltranena^{1,2}, and R. T. Zijlstra¹,
¹University of Alberta, Edmonton, AB, Canada, ²Alberta
Agriculture and Forestry, Edmonton, AB, Canada*
- 2:05 PM 295 **Regression Analysis to Predict the Impact of Dietary Neutral Detergent Fiber on Carcass Yield.**
*J. A. Soto¹, M. D. Tokach¹, S. S. Dritz¹, M. A. D. Goncalves²,
J. C. Woodworth¹, J. M. DeRouchey¹, and B. D. Goodband¹,
¹Kansas State University, Manhattan, ²Genus PIC,
Hendersonville, TN*
- 2:20 PM 296 **Effects of Inclusion Rate of High-Fiber Dietary Ingredients on Concentration of Digestible and Metabolizable Energy in Mixed Diets Fed to Growing Pigs.**
*D. M. D. L. Navarro¹, E. M. A. M. Bruininx², L. de Jong², and
H. H. Stein¹, ¹University of Illinois at Urbana–Champaign,
²Agrifirm Innovation Center, Royal Dutch Agrifirm, Apeldoorn,
the Netherlands*
- 2:35 PM 297 **Effects of Inclusion Rate of High-Fiber Dietary Ingredients on Apparent Ileal, Hindgut, and Total Tract Digestibility of Dry Matter and Nutrients in Mixed Diets Fed to Growing Pigs.**
*D. M. D. L. Navarro¹, E. M. A. M. Bruininx², L. de Jong², and
H. H. Stein¹, ¹University of Illinois at Urbana–Champaign,
²Agrifirm Innovation Center, Royal Dutch Agrifirm, Apeldoorn,
the Netherlands*
- 2:50 PM 298 **Effect of an Insoluble Fiber Source on Energy and Nitrogen Digestibility, and on Basal Intestinal Endogenous Losses of Nitrogen and Acid Hydrolyzed Ether Extract, in Growing Pigs.**
*J. A. Acosta¹, S. A. Weiland², T. A. Kellner^{1,3}, and J. F. Patience¹,
¹Department of Animal Science, Iowa State University, Ames,
²NutriQuest, Mason City, IA, ³AMVC Nutritional Services,
Audubon, IA*

- 3:05 PM 299 **Acute-Phase Protein and Microbial Metabolite Response to an Enterotoxigenic *Escherichia coli* Challenge in Weaned Pigs Fed Higher-Fiber Diets with or without Carbohydrases.**
Q. Y. Li¹, E. R. Burrough², N. K. Gabler¹, C. L. Loving³, C. K. Tuggle¹, and J. F. Patience¹, ¹Department of Animal Science, Iowa State University, Ames, ²Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, ³USDA-ARS National Animal Disease Center, Ames, IA
- 3:20 PM 300 **Impact of Fiber-Degrading Enzymes on Microbial Composition and Nonstarch Polysaccharide Metabolites in Nursery Pigs Fed a Higher-Fiber Diet.**
Q. Y. Li^{}, S. Schmitz-Esser, and J. F. Patience, Department of Animal Science, Iowa State University, Ames*
- 3:35 PM 301 **Effects of Benzoic Acid and Enzyme Blend on Growth Performance, Nutrient Digestibility, and Diarrhea Incidence in Weaned Pigs.**
B. V. Le Thanh¹, J. M. Fouhse¹, J. R. Bergstrom², J. D. Hahn², B. P. Willing¹, E. Beltranena³, and R. T. Zijlstra¹, ¹Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²DSM Nutritional Products, Parsippany, NJ, ³Alberta Agriculture and Forestry, Edmonton, AB, Canada
- 3:50 PM 302 **The Effect of Xylose on Water and Energy Balance in Pigs.**
N. F. Huntley^{} and J. F. Patience, Department of Animal Science, Iowa State University, Ames*
- 4:05 PM 303 **Effects of a Novel Phytase on Growth Performance, Bone Measurements, and Calcium and Phosphorus Digestibility in Diets Fed to Growing Pigs.**
L. Blavi¹, J. N. Broomhead², and H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, ²Agrivida, Medford, MA
- 4:20 PM 304 **The Effect of Superdose Levels of Phytase, Plasma Source, and Plasma Level on Nursery Pig Performance.**
G. Cordero^{}, M. Bedford, and P. Wilcock, AB Vista, Marlborough, United Kingdom*
- 4:35 PM 305 **Effects of Superdosing Phytase and Inositol Supplementation on Growth Performance and Blood Metabolites of Weaned Pigs Housed under Commercial Conditions.**
K. Moran¹, R. D. Boyd¹, C. E. Zier-Rush², A. J. Elsbernd³, P. Wilcock⁴, and E. van Heugten¹, ¹North Carolina State University, Raleigh, ²The Hanor Company, Inc., Franklin, KY, ³Iowa State University, Ames, ⁴AB Vista, Marlborough, United Kingdom
- 4:50 PM 306 **The Effect of Supplemental Dietary Lipase and Copper on the Growth Performance and Nutrient Digestibility of Nursery Pigs.**
A. Yin¹, S. C. Nunn¹, A. Tinkle¹, G. Wu², C. R. Dove¹, and M. J. Azain¹, ¹University of Georgia, Athens, ²Shenzhen Leveking Animal Nutrition, Shenzhen, China

ORAL SESSIONS AND SYMPOSIA

WEDNESDAY, MARCH 14, 2018

HARLAN RITCHIE SYMPOSIUM

Chair: Dan Loy, Iowa State University
Sponsor: Harlan Ritchie Appreciation Club

8:30 AM – Noon

203/204

- 8:30 AM Welcoming Remarks
- 8:35 AM 201 **Current Trends in Beef Cattle Genetic Evaluation.**
*M. L. Spangler**, University of Nebraska–Lincoln
- 9:20 AM 202 **New Technologies in Cattle Reproduction and the Correlated Acceleration of Genetic Gain.**
*M. F. Allan**, Trans Ova Genetics, Sioux Center, IA
- 10:05 AM Break
- 10:20 AM 203 **Feed Yard Performance Trends and Analysis.**
*P. T. Anderson**, Midwest PMS, LLC, Firestone, CO
- 11:05 AM 204 **Genomewide Association Analysis Identifies Quantitative Trait Loci Associated with Clinical and Subclinical Bovine Respiratory Disease.**
H. L. Neibergs¹, J. N. Kiser¹, M. Neupane¹, C. M. Seabury², J. F. Taylor³, M. A. Cornmesser¹, S. McGuirk⁴, R. Blackburn⁴, B. R. D. Consortium⁵, and J. E. Womack³, ¹Department of Animal Sciences, Washington State University, Pullman, ²Department of Veterinary Pathobiology, College of Veterinary Medicine and Biomedical Science, Texas A&M University, College Station, ³University of Missouri, Columbia, ⁴University of Wisconsin–Madison, ⁵Texas A&M University, College Station
- 11:50 AM Concluding Remarks

ODOR AND NUTRIENT MANAGEMENT SYMPOSIUM: ENVIRONMENTAL QUALITY IN LIVESTOCK PRODUCTION

Chair: Michael Brouk, Kansas State University

Sponsor:

8:30 AM – 11:30 AM

205/206

- 8:30 AM Welcoming Remarks
- 8:35 AM 363 **Enteric Nitrous Oxide Emissions from Beef Feedlot Cattle.**
D. B. Parker¹, T. Jennings², B. Meyer¹, J. Jennings², N. A. Cole¹, H. Waldrip¹, and K. D. Casey², ¹USDA–ARS, Conservation and Production Research Laboratory, Bushland, TX, ²Texas A&M AgriLife Research, Amarillo, TX
- 9:05 AM 364 **What Is Manure Really Worth?**
*A. M. Schmidt**, University of Nebraska–Lincoln

- 9:35 AM **Break**
- 9:50 AM 365 **Studies Performed in the Proper Context Suggest that Antimicrobial Use during Swine and Cattle Production Minimally Impact Antimicrobial Resistance.**
J. W. Schmidt¹, T. L. Wheeler², and T. Arthur¹, ¹USDA–ARS Roman L. Hruska U.S. Meat Animal Research Center, Clay Center, NE, ²USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE
- 10:20 AM 366 **Getting the Most from Manure – An Ancient Fertilizer in a Precision Age.**
D. S. Andersen, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames*
- 10:50 AM 367 **Regulating Livestock Waste in Nebraska – A Brief Overview.**
B. Onken, Nebraska Department of Environmental Quality, Lincoln, NE*
- 11:20 AM **Concluding Remarks**

BREEDING AND GENETICS: NC1201 SYMPOSIUM: METHODS TO INCREASE REPRODUCTIVE EFFICIENCY IN CATTLE, ADVANCING REPRODUCTIVE TECHNOLOGIES TO MEET THE WORLD DEMAND FOR FOOD

Chair: James Koltes, Iowa State University

Sponsor:

8:30 AM – 11:50 AM

210/211

- 8:30 AM **Welcoming Remarks**
- 8:35 AM **History of the NC-113/NC-1201 USDA Regional Research Project.**
H. A. Garverick, University of Missouri–Columbia*
- 9:05 AM 39 **Current Understanding of Factors Influencing Antral Follicle Count and Applications to Reproductive Management in Cattle.**
R. A. Cushman¹, G. A. Perry², and J. H. Britt³, ¹USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE, ²Department of Animal Science, South Dakota State University, Brookings, ³Department of Animal Sciences, North Carolina State University, Raleigh
- 9:35 AM 40 **Post–Artificial Insemination Supplementation with Calcium Salts of Soybean Oil Increases Pregnancy Success in *Bos taurus* Beef Cows.**
V. R. G. Mercadante¹ and R. Cooke², ¹Department of Animal and Poultry Sciences, Virginia Tech, Blacksburg, ²Department of Animal Science, Texas A&M University, College Station

- 10:05 AM **Break**
- 10:20 AM 41 **Regulation of Preovulatory Estradiol and Its Impacts throughout the Bovine Estrous Cycle.**
*E. J. Northrop¹, J. J. J. Rich¹, R. A. Cushman², and G. A. Perry¹,
¹Department of Animal Science, South Dakota State University, Brookings, ²USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE*
- 10:50 AM 42 **Split-Timed Artificial Insemination Options for Suckled Beef Cattle.**
J. S. Stevenson, Kansas State University, Manhattan*
- 11:20 AM **Panel Discussion**

ANIMAL BREEDING AND GENETICS

Chair: Lauren Hulsman Hanna, North Dakota State University

Sponsor:

8:30 AM – 11:00 AM

202

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 31 **Investigating the Presence of Social Effects in a Swine Nucleus Herd.**
D. F. Wilson-Wells, T. A. Rathje, and C. E. Bruns, DNA Genetics, Columbus, NE*
- 8:50 AM 32 **A Survey of Copy Number Variation in the Porcine Genome Detected from a Whole-Genome Sequence.**
B. N. Keel, D. J. Nonneman, and G. A. Rohrer, USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE*
- 9:05 AM 33 **Quantifying Resilience from Individual Feed Intake Data in a Natural Disease Challenge Model for Growing Pigs.**
A. M. Putz¹, J. C. S. Harding², M. K. Dyck³, P. Canada¹, F. Fortin⁵, G. S. Plastow⁶, and J. C. M. Dekkers¹, ¹Iowa State University, Ames, ²University of Saskatchewan, Saskatoon, SK, Canada, ³University of Alberta, Edmonton, AB, Canada, ⁴PigGen Canada, Guelph, ON, Canada, ⁵Centre de développement du porc du Québec, Québec City, QC, Canada, ⁶Livestock Gentec Centre, University of Alberta, Edmonton, AB, Canada
- 9:20 AM 34 **The Impact of Truncating Data on the Predictive Ability of Selection Candidate Estimated Breeding Value in Swine Using Single-Step Genomic Best Linear Unbiased Prediction.**
J. T. Howard¹, T. A. Rathje², C. E. Bruns², D. F. Wilson-Wells², S. D. Kachman¹, and M. L. Spangler¹, ¹University of Nebraska-Lincoln, ²DNA Genetics, Columbus, NE

- 9:35 AM 35 **Software Development for Deterministic Prediction of Selection Response in Livestock Breeding Programs Using Genomic Information.**
*H. Su¹, P. Bijma², J. van der Werf³, and J. C. M. Dekkers¹,
¹Iowa State University, Ames, ²Animal Breeding and Genomics Centre, Wageningen University, Wageningen, the Netherlands,
³School of Environmental and Rural Science, University of New England, Armidale, NSW, Australia*
- 9:50 AM **Break**
- 10:05 AM 36 **Incorporation of Putative Functional Variants in the NCAPG, ARRDC3, PLAG1, and ERGIC1 Genes Improves Accuracies of Genomic Predictions for Growth Traits in Beef Cattle.**
M. Saatchi, American Simmental Association, Bozeman, MT; Iowa State University, Ames*
- 10:20 AM 37 **An Assessment of Genomic Relatedness across Management Units.**
H. Yu, M. L. Spangler; R. M. Lewis, and G. Morota, University of Nebraska–Lincoln*
- 10:35 AM 38 **Effectiveness of Genomic Testing in Predicting Carcass Characteristics and Feedlot Performance.**
W. C. Rusche, J. A. Walker, and M. G. Gonda, Department of Animal Science, South Dakota State University, Brookings*
- 10:50 AM **Concluding Remarks**

ANIMAL BEHAVIOR, HOUSING, AND WELL-BEING

Chair: Kurt Vogel, University of Wisconsin–River Falls

Sponsor:

8:30 AM – 11:10 AM

201

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 13 **Effect of Floor Space Allowances on Growth Performance of Finishing Pigs Marketed at One Hundred Thirty-Eight Kilograms.**
*L. J. Johnston¹, D. W. Rozeboom², B. D. Goodband³,
S. J. Moeller⁴, M. C. Shannon⁵, and S. J. Schiek⁶, ¹West Central Research and Outreach Center, University of Minnesota, Morris, ²Michigan State University, East Lansing, ³Kansas State University, Manhattan, ⁴The Ohio State University, Columbus, ⁵Division of Animal Sciences, University of Missouri, Columbia, ⁶University of Minnesota Extension, Willmar*

- 8:50 AM 14 **Evaluation of Floor Cooling on Lactating Sows under Mild and Moderate Heat Stress.**
F. A. Cabezon¹, J. Maskal¹, A. P. Schinckel¹, J. N. Marchant-Forde², J. S. Johnson², and R. M. Stwalley³, ¹Department of Animal Sciences, Purdue University, West Lafayette, IN, ²USDA–ARS Livestock Behavior Research Unit, West Lafayette, IN, ³Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, IN
- 9:05 AM 15 **Mature Minipigs Seek and Prefer Novelty.**
J. M. Mumm¹, M. J. Coffin¹, L. A. Ruiz¹, S. R. Greenway¹, M. J. Goering¹, L. Zai², T. Walilko³, and L. E. Hulbert¹, ¹Kansas State University, Manhattan, ²Lucent Research, LLC, Parker, CO, ³Applied Research Associates, Inc., Littleton, CO
- 9:20 AM 16 **Quantitative Evaluation of Stress in Pregnant Sows in Response to Time-Restricted Feeding and Meal Frequency under a Limit Feeding Regime.**
H. Manu¹, L. Su Hyup¹, D. Pangen¹, B. A. Crooker², and S. K. Baidoo¹, ¹Southern Research and Outreach Center, University of Minnesota, Waseca, ²University of Minnesota, Saint Paul
- 9:35 AM 17 **The Impact of Transdermal Flunixin Meglumine on Biomarkers of Pain in Calves When Administered at the Time of Surgical Castration without Local Anesthesia.**
M. D. Kleinhenz¹, N. Van Engen¹, J. Smith², P. J. Gorden¹, C. Wang³, S. Perkins⁴, and J. F. Coetzee⁵, ¹Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, ²College of Veterinary Medicine, Iowa State University, Ames, ³Iowa State University, Ames, ⁴Castle Veterinary Surgeons, Barnard Castle, United Kingdom, ⁵Pharmacology Analytical Support Team, College of Veterinary Medicine, Iowa State University, Ames
- 9:50 AM **Break**
- 10:00 AM 18 **Comparison of Group and Individual Housing on Incidence and Severity of Feet Lesions, Productivity, and Survivability in First-Parity Gilts.**
M. D. Trenhaile-Grannemann^{} and B. E. Mote, University of Nebraska–Lincoln*
- 10:15 AM 19 **Effect of Gestation Housing System (Individual versus Group) on the Reproductive Performance of Sows over Six Parities under Commercial Conditions.**
K. D. Vande Pol¹, M. Ellis¹, A. L. Ludwig², A. M. Gaines², B. A. Peterson², and C. M. Shull², ¹University of Illinois at Urbana–Champaign, ²The Maschhoffs, LLC, Carlyle, IL

- 10:30 AM 20 **The Effects of Extended Water Restriction on the Hematological Cell Distribution of Beef Cattle in Confinement.**
A. Taylor¹, K. Bruno¹, M. Calvo-Lorenzo², C. J. Richards¹, C. R. Krehbiel¹, M. M. Rolf³, U. Desilva¹, D. L. VanOverbeke¹, R. G. Mateescu⁴, and S. E. Place⁵, ¹Oklahoma State University, Stillwater; ²Elanco Animal Health, Fayetteville, AR; ³Kansas State University, Manhattan; ⁴University of Florida, Gainesville; ⁵National Cattlemen's Beef Association, Centennial, CO
- 10:45 AM 21 **Evaluation of Transdermal Flunixin Meglumine on Experimentally Induced Lameness in Adult Dairy Cattle.**
M. D. Kleinhenz¹, P. J. Gorden¹, J. Smith², J. A. Schleining¹, K. E. Kleinhenz³, D. Rea⁴, and J. F. Coetzee⁵, ¹Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University, Ames; ²College of Veterinary Medicine, Iowa State University, Ames; ³Department of Animal Science, Iowa State University, Ames; ⁴Castle Veterinary Group, Downpatrick, United Kingdom; ⁵Pharmacology Analytical Support Team, College of Veterinary Medicine, Iowa State University, Ames
- 11:00 AM **Concluding Remarks**

PHYSIOLOGY II: REPRODUCTIVE AND DIGESTIVE PHYSIOLOGY

Chair: Alison K. Ward, Center for Nutrition and Pregnancy,
 North Dakota State University

Sponsor:

8:30 AM – 11:00 AM

212

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 393 **Reproductive Parameters and Blood Metabolites in Young Female Rats Subjected to Feed Restriction and/or Ginger Administration.**
B. Shdaifat¹, A. Izbeidat¹, W. Al-Khashroom¹, M. Mayyas¹, H. S. Subih¹, B. S. Obeidat¹, P. M. Bartlewski², and R. T. Kridli¹, ¹Jordan University of Science and Technology, Irbid, Jordan; ²University of Guelph, Guelph, ON, Canada
- 8:50 AM 394 **Nutritional Regulation of Luteinizing Hormone Secretion in Gilts: Hypothalamic Expression of Kisspeptin and Neurokinin B.**
C. A. Lents¹, J. F. Thorson¹, H. Adams², S. L. Petersen², L. Prezotto³, E. D. Berry¹, and D. J. Nonneman¹, ¹USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE; ²University of Massachusetts, Amherst; ³Montana State University, Havre

- 9:05 AM 395 **Exploring Causal Biological Relationships between Reproductive Traits in High-Performing Gilts and Sows.**
K. Chitakasempornkul¹, M. B. Menegat¹, M. A. D. Goncalves², S. S. Dritz¹, A. Jager¹, M. D. Tokach¹, R. D. Goodband¹, and N. M. Bello¹, ¹Kansas State University, Manhattan, ²Genus PIC, Hendersonville, TN
- 9:20 AM 396 **Climatic and Lunar Effects on Boar Ejaculate Traits.**
J. Chinchilla Vargas¹, K. Kerns^{2,3}, and M. F. Rothschild¹, ¹Department of Animal Science, Iowa State University, Ames, ²International Boar Semen, Eldora, IA, ³Division of Animal Sciences, University of Missouri, Columbia
- 9:35 AM 397 **Time Series and Correlation Network Analyses to Identify the Role of Maternal Microbiomes on Development of Piglet Gut Microbiome and Susceptibility to Neonatal Porcine Diarrhea.**
*Z. Zhang^{1,2}, A. Kwawukume¹, S. Moossavi², S. Sepehri^{1,3}, M. Nyachoti¹, and E. Khafipour^{*1,2,3}, ¹Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, ²Department of Medical Microbiology and Infectious Diseases, University of Manitoba, Winnipeg, MB, Canada, ³Children's Hospital Research Institute of Manitoba, Winnipeg, MB, Canada*
- 9:50 AM **Break**
- 10:05 AM 398 **Development of Swine Enteroids as a Model to Study *Lawsonia intracellularis* Infection.**
M. Trudeau¹, T. P. Resende², Y. Guo¹, P. E. Urriola¹, G. C. Shurson¹, C. J. Gebhart², and M. Saqui-Salces¹, ¹Department of Animal Science, University of Minnesota, Saint Paul, ²Department of Veterinary and Biomedical Sciences, University of Minnesota, Saint Paul
- 10:20 AM 399 **Response of IPEC-J2 Cells and Jejunal Explants to Treatment with Rhamnolipids.**
D. M. van Sambeek¹, T. E. Burkey¹, and L. Smalley², ¹University of Nebraska–Lincoln, ²Jeneil Biotech Inc., Saukville, WI
- 10:35 AM 400 **Effects of Live Yeast Supplementation on Growth Performance and Biomarkers of Metabolism and Inflammation in Finishing Pigs during Heat Stress.**
E. J. Mayorga¹, S. K. Kvidera¹, E. A. Horst¹, M. A. Al-Qaisi¹, C. S. Shouse¹, M. A. Abeyta¹, S. Lei¹, J. R. Corley², T. G. Kirov², T. H. Elsasser³, S. Kah¹, H. A. Ramirez¹, and L. H. Baumgard¹, ¹Iowa State University, Ames, ²Phileo Lesaffre Animal Care, Cedar Rapids, IA, ³USDA–ARS, Beltsville, MD, ⁴USDA–ARS Animal Biosciences and Biotechnology Laboratory, Beltsville, MD
- 10:50 AM **Concluding Remarks**

NONRUMINANT NUTRITION VI: FEED ADDITIVES II

Chair: William T. Oliver, USDA-ARS U.S. Meat Animal Research Center

Sponsor:

8:30 AM – Noon

214

- 8:30 AM **Welcoming Remarks**
- 8:35 AM 338 **Effect of Arachidonic Acid on Growth, Crosslaps, and Lipocalin-2 in Nursery Pigs.**
R. J. Faris^{}, J. Zhao, and D. Pascoe, Cargill Animal Nutrition, Elk River, MN*
- 8:50 AM 339 **Effects of a Fermentation Biomass (AjiTein) and a Modified Corn Byproduct (Gold Pro) on Health and Growth Performance of Nursery Pigs Fed Antibiotic-Free and Vegetarian Diets.**
T. M. Fakler¹, F. B. Sandberg¹, S. J. England¹, M. R. Bible¹, K. T. Soltwedel¹, J. Y. Jacela¹, and K. J. Touchette², ¹Furst-McNess Company, Freeport, IL, ²Ajinomoto Heartland, Inc., Chicago, IL
- 9:05 AM 340 **Characterization of the Physiological Responses to Postweaning Diets Containing Growth-Promoting Levels of Zinc Oxide and Carbadox Fed to Nursery Pigs.**
Y. T. Hung¹, J. Guo², Q. Hu³, R. J. Faris³, P. E. Urriola¹, G. C. Shurson¹, C. Chen^{1,2}, and M. Saqui-Salces¹, ¹Department of Animal Science, University of Minnesota, Saint Paul, ²Department of Food Science and Nutrition, University of Minnesota, Saint Paul, ³Cargill Animal Nutrition, Elk River, MN
- 9:20 AM 341 **Supplementation of Sodium Bentonite Clay Did Not Alleviate the Negative Effect of Fumonisin B1-Contaminated Corn on Feed Preference and Nutrient Digestibility in Weanling Pigs.**
D. Wang^{}, A. Thomas, and M. D. Lindemann, University of Kentucky, Lexington*
- 9:35 AM 342 **Effects of a Sulfur-Containing Preservative Blend on Growth Performance of Nursery Pigs Challenged with Diets Containing Elevated Level of Deoxynivalenol.**
S. M. Ebarb¹, S. B. Williams¹, C. M. Fowler¹, and D. W. Giesting², ¹Provimi, Brookville, OH, ²Cargill Animal Nutrition, Hopkins, MN
- 9:50 AM 343 **Effects of Outpace and Ambitine Feed Additives on the Performance of Wean-to-Finish Pigs.**
C. V. Cooper^{}, S. D. Carter, P. Aparachita, and I. Silva Lara, Oklahoma State University, Stillwater*
- 10:05 AM **Break**

- 10:20 AM 344 **Evaluation of Supplementation of Potassium Chloride and Choline Chloride in High Feed-Grade Amino Acid Finishing Diets.**
*L. Ochoa^{*1}, A. Graham¹, L. Greiner¹, B. Knopf¹, M. A. D. Goncalves², W. Cast³, and U. A. D. Orlando², ¹Carthage Innovative Swine Solutions, LLC, Carthage, IL, ²Genus PIC, Hendersonville, TN, ³Princeton, MO*
- 10:35 AM 345 **Effects of Lysine (and Ideal Protein) Levels on Performance of Pigs with and without the Addition of a Blend of Phytonutrients (Lean Fuel) in the Late Finishing Phase.**
F. B. Sandberg^{}, S. J. England, M. R. Bible, K. T. Soltwedel, T. M. Fakler, and J. Y. Jacela, Furst-McNess Company, Freeport, IL*
- 10:50 AM 346 **Effects of Feeding a Finisher Feed Containing Ractopamine Hydrochloride to Pigs Sorted by Body Weight at Placement on Growing–Finishing Pig Growth Performance.**
C. M. Vier^{}, M. B. Menegat, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, J. C. Woodworth, and S. S. Dritz, Kansas State University, Manhattan*
- 11:05 AM 347 **The Evaluation of Feed Acidification with Feed Grade Sodium Formate on Wean-to-Finish Pig Performance.**
*A. Graham^{*1}, J. A. Jendza², and H. Y. Chen³, ¹Carthage Innovative Swine Solutions, LLC, Carthage, IL, ²BASF Corp., Florham Park, NJ, ³BASF SE, Lampertheim, Germany*
- 11:20 AM 348 **The Effect of a *Bacillus subtilis*-Based Direct-Fed Microbial Feed Additive on the Lactation Performance of Sows and Their Offspring.**
*N. R. Augspurger^{*1}, G. I. Peterson¹, S. Son², K. McCormick¹, and M. King², ¹United Animal Health, Sheridan, IN, ²Microbial Discovery Group, Franklin, WI*
- 11:35 AM 349 **Evaluation of a Fenugreek Extract Fed to Sows from Ninety Days of Gestation through Lactation on Sow and Litter Performance.**
*A. Graham^{*1}, B. Knopf¹, F. B. Sandberg², K. T. Soltwedel², M. R. Bible², and L. Greiner¹, ¹Carthage Innovative Swine Solutions, LLC, Carthage, IL, ²Furst-McNess Company, Freeport, IL*
- 11:50 AM **Concluding Remarks**

NONRUMINANT NUTRITION VII: GENERAL TOPICS

Chair: Matthew D. Asmus, Purdue University

Sponsor:

8:15 AM – Noon
213

- 8:15 AM Welcoming Remarks
- 8:20 AM 350 **Young Scholar Presentation: Effect of a Dairy Probiotic, *Propionibacterium freudenreichii*, on *Salmonella enterica* Heidelberg Colonization and Internal Organ Dissemination in Commercial Turkeys.**
*D. V. T. Nair**, J. V. Thomas, G. Dewi, and A. Kollanoor Johny, University of Minnesota, Saint Paul
- 8:50 AM 351 **Effects of Tylosin Administration Route on the Development of Antimicrobial Resistance in Fecal Enterococci of Finishing Swine.**
*F. Wu**, M. D. Tokach, J. M. DeRouchey, S. S. Dritz, J. C. Woodworth, R. D. Goodband, K. Capps, S. Remfry, K. Chitakasempornkul, N. M. Bello, T. G. Nagaraja, and R. G. Amachawadi, Kansas State University, Manhattan
- 9:05 AM 352 **Modeling Dietary Net Energy for Maximum Profitability in Growing–Finishing Pigs.**
*J. A. Soto**¹, M. D. Tokach¹, S. S. Dritz¹, M. A. D. Goncalves², J. C. Woodworth¹, J. M. DeRouchey¹, B. D. Goodband¹, and U. A. D. Orlando², ¹Kansas State University, Manhattan, ²Genus PIC, Hendersonville, TN
- 9:20 AM 353 **Dietary Protein Levels Affect Neonatal Pig Growth and Mesenchymal Stem Cell Behavior.**
*W. Zhang**¹, R. L. Murray¹, R. P. Rhoads², and C. H. Stahl¹, ¹University of Maryland, College Park, ²Virginia Tech, Blacksburg
- 9:35 AM 354 **Effects of Monosodium Glutamate and AminoGut on Nursery Pig Performance.**
*A. B. Lerner**¹, M. D. Tokach¹, J. M. DeRouchey¹, S. S. Dritz¹, J. C. Woodworth¹, B. D. Goodband¹, and K. J. Touchette², ¹Kansas State University, Manhattan, ²Ajinomoto Heartland, Inc., Chicago, IL
- 9:50 AM **Break**
- 10:00 AM 355 **Digestibility Marker Type, but Not Inclusion Level, Affects Apparent Digestibility of Gross Energy and Nitrogen and Marker Recovery in Growing Pigs.**
*T. Wang** and O. Adeola, Department of Animal Sciences, Purdue University, West Lafayette, IN

- 10:15 AM 356 **Assessment of Sampling Technique of Swine Diets on Analytical Variation.**
*A. M. Jones**, J. C. Woodworth, C. I. Vahl, M. D. Tokach, S. S. Dritz, J. M. DeRouchey, and B. D. Goodband, Kansas State University, Manhattan
- 10:30 AM 357 **Prediction of the Concentration of Standardized Ileal Digestible Amino Acids in Distiller's Dried Grains with Solubles for Poultry: A Meta-Analysis.**
*J. Zhu**, Z. K. Zeng, G. C. Shurson, and P. E. Urriola, Department of Animal Science, University of Minnesota, Saint Paul
- 10:45 AM 358 **The Evaluation of the Bioavailability of L-Lysine Sulfate Relative to L-Lysine Hydrochloride for Growing-Finishing Pigs.**
*S. A. Gould**¹, Q. Y. Li¹, J. C. González-Vega², J. E. Thomson², J. K. Htoo³, and J. F. Patience¹, ¹Department of Animal Science, Iowa State University, Ames, ²Evonik Corp., Kennesaw, GA, ³Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany
- 11:00 AM 359 **To Block or Not to Block: The Tale of Initial Weight in Swine Nutrition Trials.**
*N. V. L. Serão**¹, N. A. Gutierrez², A. Wolc^{1,3}, and R. L. Fernando¹, ¹Iowa State University, Ames, ²Trouw Nutrition Research and Development, Amersfoort, the Netherlands, ³Hy-Line International, Dallas Center, IA
- 11:15 AM 360 **Effect of Simulated Outdoor Rearing on Growth Performance, Health, Blood Minerals, and Complete Blood Cell Count in Wean-to-Finish Pigs.**
*T. Tsai**¹, M. A. Sales¹, X. Wang¹, G. F. Erf², E. B. Kegley¹, J. Zhao¹, and C. V. Maxwell¹, ¹Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, ²Department of Poultry Science, Division of Agriculture, University of Arkansas, Fayetteville
- 11:30 AM 361 **Mycotoxin Prevalence in the 2017 Corn Crop.**
*E. G. Hendel**¹, P. N. Gott¹, S. M. Mendoza¹, S. Schaumberger², and G. R. Murugesan¹, ¹BIOMIN America Inc., Kansas City, KS, ²BIOMIN Holding GmbH, Getzersdorf, Austria
- 11:45 AM 362 **Quantification of Basal Endogenous Fat Losses and Their Impact on Estimates of the Digestible Energy Content of Dietary Fat Fed to Thirteen- and Fifty-Kilogram Pigs.**
*T. A. Kellner**^{1,2}, J. A. Acosta², and J. F. Patience², ¹AMVC Nutritional Services, Audubon, IA, ²Department of Animal Science, Iowa State University, Ames

RUMINANT NUTRITION III: DAIRY

Chair: Hugo A. Ramirez, Iowa State University

Sponsor:

8:30 AM – 11:15 AM

207

- 8:30 AM 449 **Young Scholar Presentation: Altering the Dietary Ratio of Fatty Acids under Different Physiological Conditions on Energy Partitioning of Dairy Cows.**
J. de Souza and A. Lock, Michigan State University, East Lansing*
- 9:00 AM 450 **Young Scholar Presentation: Methionine Supply Enhances Performance, Alleviates Inflammation, and Alters Uteroplacental Nutrient Transport in Dairy Cows.**
F. Batistel¹, E. Trevisi², C. Parys³, and J. J. Loor¹, ¹Department of Animal Sciences, University of Illinois at Urbana-Champaign, ²Università Cattolica del Sacro Cuore, Piacenza, Italy, ³Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany
- 9:30 AM 451 **Young Scholar Presentation: Towards a Better Understanding of the Metabolism, Physiology, and Ecology of Rumen Protozoa: New Insights from Culturomics and Genomics.**
T. Park, The Ohio State University, Columbus*
- 10:00 AM **Break**
- 10:15 AM 452 **Young Scholar Presentation: Influences of Milk Intake and Dietary Inclusion of a Bioactive Extract from *Olea europaea* on GLP-2 and Its Effects on Growth and Intestinal Health of Dairy Calves.**
S. Y. Morrison and J. K. Drackley, University of Illinois at Urbana-Champaign*
- 10:45 AM 453 **Production of High-Quality Forage through Unique Forage Blends.**
I. P. Acharya¹ and D. P. Casper², ¹South Dakota State University, Brookings, ²Furst-McNess Company, Freeport, IL

RUMINANT NUTRITION IV: GENERAL TOPICS

Chair: Mary E. Drewnoski, University of Nebraska–Lincoln

Sponsor:

8:30 AM – 11:30 AM

216

- 8:30 AM 454 **Effect of Revalor-XH Compared with Revalor-IH Followed by Revalor-200 on Feedlot Performance and Carcass Characteristics of Heifers Fed to Three Different End Points.**
G. I. Crawford¹, J. P. Hutcheson¹, B. P. Holland², A. B. Word², W. T. Nichols¹, M. N. Streeter¹, M. E. Corrigan¹, and B. L. Nuttelman¹, ¹Merck Animal Health, De Soto, KS, ²Cactus Feeders, Amarillo, TX
- 8:45 AM 455 **Effects of Time of Administration of an Implant Containing Two Hundred Milligrams of Trenbolone Acetate and Twenty Milligrams of Estradiol in Finishing Heifers Given Eighty Milligrams of Trenbolone Acetate and Eight Milligrams of Estradiol at Initial Processing and Fed for One Hundred Eighty-One Days.**
B. E. Depenbusch¹, M. E. Corrigan², G. I. Crawford², J. P. Hutcheson², W. T. Nichols², B. L. Nuttelman², and M. N. Streeter², ¹Innovative Livestock Services, Inc., Great Bend, KS, ²Merck Animal Health, De Soto, KS
- 9:00 AM 456 **Evaluation of Revalor-XH for Beef Heifers Fed Different Days on Feed.**
C. A. Ohnoutka¹, R. G. Bondurant¹, M. N. Streeter², G. I. Crawford², B. L. Nuttelman², G. E. Erickson¹, J. C. MacDonald¹, and M. K. Luebke³, ¹University of Nebraska–Lincoln, ²Merck Animal Health, De Soto, KS, ³University of Nebraska–Scottsbluff
- 9:15 AM 457 **Effects of Feeding a Moderate-Energy Diet before a High-Energy Finishing Phase in Steers Implanted with Revalor-XS on Performance and Carcass Characteristics.**
J. M. Zeltwanger and A. DiCostanzo, University of Minnesota, Saint Paul*
- 9:30 AM 458 **Impact of Rumen Bacteria on Marbling in Wagyu Cattle.**
W. Abbas¹, A. L. Knoell¹, W. A. Tom², C. L. Anderson², H. A. Paz¹, and S. C. Fernando¹, ¹Department of Animal Science, University of Nebraska–Lincoln, ²School of Biological Sciences, University of Nebraska–Lincoln
- 9:45 AM **Break**

- 10:00 AM 459 **Effect of Different Fatty Acid Profiles in the Maternal and Finishing Diet on Liver Fatty Acid Profile and Gene Expression.**
*D. N. Coleman^{*1}, A. C. Carranza Martin², and A. E. Relling³,
¹Department of Animal Sciences, University of Illinois at Urbana–Champaign, ²Veterinary Genetic Institute “Ing. Fernando Noel Dulout” National Research Council, La Plata, Argentina, ³Department of Animal Sciences, The Ohio State University, Wooster*
- 10:15 AM 460 **Effect of Different Fatty Acid Profiles in the Maternal and Finishing Diet on Subcutaneous Adipose Tissue Fatty Acid Profile and Gene Expression.**
*D. N. Coleman^{*1}, A. C. Carranza Martin², and A. E. Relling³,
¹Department of Animal Sciences, University of Illinois at Urbana–Champaign, ²Veterinary Genetic Institute “Ing. Fernando Noel Dulout” National Research Council, La Plata, Argentina, ³Department of Animal Sciences, The Ohio State University, Wooster*
- 10:30 AM 461 **Effect of Different Fatty Acid Profiles in the Maternal and Finishing Diet on Performance and Carcass Characteristics in Lambs.**
*A. C. Carranza Martin^{*1}, D. N. Coleman², L. Garcia³, C. C. Furnus¹, and A. E. Relling⁴, ¹Veterinary Genetic Institute “Ing. Fernando Noel Dulout” National Research Council, La Plata, Argentina, ²Department of Animal Sciences, University of Illinois at Urbana–Champaign, ³The Ohio State University, Columbus, ⁴Department of Animal Sciences, The Ohio State University, Wooster*
- 10:45 AM 462 **Effects of Cow–Calf Production System and Postweaning Management on Finishing Performance and Carcass Characteristics.**
*S. E. Gardine^{*1}, J. M. Warner¹, B. M. Boyd¹, C. J. Bittner¹, F. H. Hilscher¹, K. H. Jenkins², G. E. Erickson¹, and T. J. Klopfenstein¹, ¹University of Nebraska–Lincoln, ²University of Nebraska–Scottsbluff*
- 11:00 AM 463 **Effects of Winter Cow–Calf Production System on Cow–Calf Performance.**
*S. E. Gardine^{*1}, J. M. Warner¹, R. G. Bondurant¹, F. H. Hilscher¹, K. H. Jenkins², G. E. Erickson¹, and T. J. Klopfenstein¹,
¹University of Nebraska–Lincoln, ²University of Nebraska–Scottsbluff*
- 11:15 AM **Concluding Remarks**

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POSTER SESSIONS
MONDAY, MARCH 12, 2018

**POSTER SESSION I:
GRADUATE STUDENT POSTER COMPETITION I: PHD**

Chair:
12:30 PM – 1:30 PM
Grand Ballroom Foyer

SCREEN

- 176 1 **Effects of Standardized Ileal Digestible Histidine:Lysine Ratio on Growth Performance of Seven- to Eleven-Kilogram Pigs.**
*H. S. Cemin^{*1}, M. D. Tokach¹, C. M. Vier¹, S. S. Dritz¹, J. C. Woodworth¹, J. M. DeRouchey¹, R. D. Goodband¹, and K. J. Touchette², ¹Kansas State University, Manhattan, ²Ajinomoto Heartland, Inc., Chicago, IL*
- 177 2 **Effects of Metabolizable Protein Level on Mammary Gland Vascularity, Proliferation, and Alveoli Size during Late Gestation in Sheep.**
*H. H. Mansour^{*1}, A. Reyaz¹, V. A. Valkov¹, L. Lekatz², M. Van Emon³, C. S. Schauer⁴, A. Grazul-Bilska⁵, and K. A. Vonnahme⁵, ¹North Dakota State University, Fargo, ²University of Minnesota Crookston, Crookston, ³Montana State University, Bozeman, ⁴North Dakota State University Hettinger Research Extension Center, Hettinger, ⁵Department of Animal Sciences, North Dakota State University, Fargo*
- 178 3 **Comparison of Two Methods of Bovine Pregnancy Tests to Determine Embryonic Loss in Beef Cows.**
*E. J. Northrop^{*1}, J. J. J. Rich¹, J. R. Rhodes², and G. A. Perry¹, ¹Department of Animal Science, South Dakota State University, Brookings, ²IDEXX Laboratories, Westbrook, ME*
- 179 4 **Intestinal Epithelial Responses to Organic and Inorganic Sources of Zinc.**
*Y. Guo^{*1}, P. E. Urriola¹, G. C. Shurson¹, M. E. Wilson², and M. Saqui-Salces¹, ¹Department of Animal Science, University of Minnesota, Saint Paul, ²Zinpro Corporation, Eden Prairie, MN*
- 180 5 **Effect of High Dietary Canola Meal Inclusion in Gestation and Lactation Sow Diets with or without Enzyme Supplementation on Reproductive Performance, Milk Composition and Nutrient Digestibility.**
D. E. Velayudhan^{}, M. M. Hossain, and C. M. Nyachoti, Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada*

**POSTER SESSION I: GRADUATE STUDENT
POSTER COMPETITION II: MS I**

**Chair:
12:30 PM – 1:30 PM
Grand Ballroom Foyer**

SCREEN

- 16 6 **Mechanically Cleaning Corn Reduces Fumonisin Concentration.**
*A. D. Yoder**, *C. R. Stark*, *J. M. DeRouchey*, *M. D. Tokach*, and
C. K. Jones, *Kansas State University, Manhattan*
- 166 7 **Effect of Deoxynivalenol and Sodium Metabisulfite, an Antimycotoxin Additive, on Nutrient Digestibility in Pigs.**
*F. Guay*¹, *M. P. Létourneau Montminy*², *M. Bouchard*¹, and *Y. Chorfi*³,
¹*Université Laval, Québec, QC, Canada*, ²*Département des sciences animales, Université Laval, Québec, QC, Canada*, ³*Faculté de médecine vétérinaire, Université de Montréal, Saint-Hyacinthe, QC, Canada*
- 167 8 **Risk Factors for Culling Intervals and Lifetime Performance on Commercial Breeding Farms.**
S. Tani^{*1}, *C. Piñeiro*², and *Y. Koketsu*¹, ¹*Meiji University, Kawasaki, Japan*, ²*PigCHAMP Pro Europa S.L., Segovia, Spain*
- 168 9 **Supplementation of Organic and Inorganic Selenium on Oxidative Stress of Weaned Pigs. 2. Antioxidant Capacity.**
N. Doan^{*1}, *P. Ji*¹, *K. Kim*¹, *D. Bravo*², and *Y. Liu*¹, ¹*University of California, Davis*, ²*Pancosma, Geneva, Switzerland*
- 169 10 **Life Cycle Assessment of the Chinese Commercial Pig.**
A. M. Naranjo^{*}, *University of California, Davis, Davis*
- 170 11 **Effect of Time of Birth on Fall-Born Beef Calf Rectal Temperature and Metabolites in the First Seventy-Two Hours of Life.**
E. L. Stephenson^{*}, *J. M. Larson*, and *A. M. Meyer*, *Division of Animal Sciences, University of Missouri, Columbia*
- 171 12 **Effect of Backgrounding and Feedlot System Strategies on May-Born Steer Performance.**
M. Erickson^{*}, *A. C. Lansford*, *J. A. Musgrave*, and *R. N. Funston*,
University of Nebraska West Central Research and Extension Center, North Platte

**POSTER SESSION I: UNDERGRADUATE STUDENT
POSTER COMPETITION I**

Chair:
12:30 PM – 1:30 PM
Grand Ballroom Foyer

SCREEN

- 493 13 **Effects of Monensin Sodium and Xylanase on Broiler Growth Performance.**
A. L. Smith, C. J. Delfelder, C. R. Stark, C. E. Evans, A. D. Yoder, C. B. Paulk, R. S. Beyer, and C. K. Jones, Kansas State University, Manhattan*
- 494 14 **Food Safety Compliance Readiness of Kansas Pet Food Manufacturers.**
D. L. Schmidt and C. K. Jones, Kansas State University, Manhattan*
- 495 15 **Variables Impacting Sanitation Efficacy in University Swine Barns.**
S. P. Ney, A. J. Staggs, M. E. Muckey, and C. K. Jones, Kansas State University, Manhattan*
- 496 16 **Effects of Cleaning Corn on Nursery Pig Growth Performance.**
L. M. Tischhauser, A. D. Yoder, and C. K. Jones, Kansas State University, Manhattan*
- 497 17 **Repeatability and Subsequent Reproductive Performance of Parity-One Sows that Had Weaning-to-First-Service Intervals of Zero to Three, Four, Five, Six, Seven to Twenty, or Twenty-One Days or More.**
Y. Yatabe¹, C. Piñeiro², and Y. Koketsu¹, ¹Meiji University, Kawasaki, Japan, ²PigCHAMP Pro Europa S.L., Segovia, Spain
- 498 18 ***Saccharomyces cerevisiae* Supplementations Effect on Fiber Digestibility in the Equine.**
H. K. Nerlich, R. Koler, E. Powell, and T. L. Williams, University of Findlay, Findlay, OH*
- 499 19 **Effects of Conventional versus Organic Mineral Supplementation on Kid Birth Weight in Nubian Goats.**
C. J. Rocco¹, A. M. Stiegel¹, T. L. Williams¹, and Z. T. Williams², ¹University of Findlay, Findlay, OH, ²Tennessee Technological University, Cookeville
- 500 20 **Dry Matter Intake of Beef Heifers Fed Diets Supplemented with Progressive Increments of Whey Extract Powder.**
S. L. Van Asten¹, A. E. Crooks², D. M. Schaefer², and P. J. Lammers¹, ¹University of Wisconsin–Platteville, ²University of Wisconsin–Madison
- 501 21 **Performance of Weaned Pigs Fed Progressive Increments of Whey Extract Powder.**
J. L. Schroeder, K. A. L. Hardyman, and P. J. Lammers, University of Wisconsin–Platteville*

- 502 22 **Low-Stress Sampling and Cortisol Concentrations in Periparturient Sows.**
*M. J. Goering**, *J. M. Mumm*, *M. J. Coffin*, *E. M. Bortoluzzi*, *L. A. Ruiz*,
 and *L. E. Hulbert*, *Kansas State University, Manhattan*

POSTER SESSION I: NONRUMINANT NUTRITION I: AMINO ACID REQUIREMENTS

Chair: **Victor G. Perez, Pancosma**
12:45 PM – 1:30 PM
Grand Ballroom Foyer

SCREEN

- 205 23 **Evaluation of High Standardized Ileal Digestible Tryptophan: Lysine Ratios with Ractopamine Hydrochloride on Growth and Carcass Performance of Pigs from One Hundred Ten to One Hundred Thirty-Five Kilograms.**
*J. A. Soto**¹, *M. D. Tokach*¹, *K. J. Touchette*², *S. S. Dritz*¹,
*J. C. Woodworth*¹, *J. M. DeRouche*¹, and *B. D. Goodband*¹, ¹*Kansas State University, Manhattan*, ²*Ajinomoto Heartland, Inc., Chicago, IL*
- 206 24 **Effects of Soybean Meal Concentration at a Fixed Twelve Percent Dietary Crude Protein on Growth and Carcass Performance of Finishing Pigs from One Hundred Fifteen to One Hundred Thirty-Six Kilograms.**
*J. A. Soto**¹, *M. D. Tokach*, *S. S. Dritz*, *J. C. Woodworth*, *J. M. DeRouche*,
 and *B. D. Goodband*, *Kansas State University, Manhattan*
- 207 25 **The Ideal Dietary Protein Profile for Finishing Pigs in Precision Feeding Systems and Phase Feeding Systems: Threonine.**
*A. Remus**¹, *M. P. Létourneau-Montminy*², *L. Hauschild*³, and *C. Pomar*¹,
¹*Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*,
²*Université Laval, Québec, QC, Canada*, ³*FCAV/UNESP, Jaboticabal, Brazil*
- 208 26 **Evaluation of the Standardized Ileal Digestible Total Sulfur Amino Acid: Lysine Requirement for Fourteen- to Twenty-Seven-Kilogram PIC Nursery Pigs.**
*A. Graham*¹, *B. Knopf*¹, *M. A. D. Goncalves*², *U. A. D. Orlando*², and
*L. Greiner*¹, ¹*Carthage Innovative Swine Solutions, LLC, Carthage, IL*,
²*Genus PIC, Hendersonville, TN*
- 209 27 **Effects of Increasing Ratios of Standardized Ileal Digestible Total Sulfur Amino Acid to Lysine on Growth Performance of Seven- to Seventeen-Kilogram Pigs under an Antibiotics or Antibiotics-Free Regime.**
*P. Ren*¹, *U. A. D. Orlando*², *M. A. D. Goncalves*², and *M. Vázquez-Añón*¹,
¹*Novus International, Inc., Saint Charles, MO*, ²*Genus PIC, Hendersonville, TN*

**POSTER SESSION II: GRADUATE STUDENT
POSTER COMPETITION III: MS II**

Chair:
4:45 PM – 5:45 PM
Grand Ballroom Foyer

SCREEN

- 172 9 **Analysis of the Fecal Microbiome of Crossbred Beef Cows Grazing Toxic or Novel Fescue.**
S. Chewning¹, L. R. Meyer¹, J. A. Atchley¹, J. G. Powell¹, J. D. Tucker², D. S. Hubbell III¹, J. Zhao¹, and J. E. Koltes³, ¹Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, ²Livestock and Forestry Research Station, Division of Agriculture, University of Arkansas, Batesville, ³Department of Animal Science, Iowa State University, Ames
- 173 10 **New Revalor Implant Comparisons for Finishing Heifers.**
C. A. Ohnoutka¹, B. M. Boyd¹, F. H. Hilscher¹, G. I. Crawford², B. L. Nuttelman², and G. E. Erickson¹, ¹University of Nebraska–Lincoln, ²Merck Animal Health, De Soto, KS
- 174 11 **Effects of Feeding Level and Diet Type during the Wean-to-Estrus Interval on Reproductive Performance of Sows.**
L. Malcorra de Almeida¹, M. Goncalves², U. A. D. Orlando², and A. Maiorka¹, ¹Universidade Federal do Paraná, Curitiba, Brazil, ²Genus PIC, Hendersonville, TN
- 175 12 **The Effects of Cut Height and Fungicide Application on Whole-Plant Corn Silage Yield.**
T. A. Damery¹, R. T. Pate¹, R. Myers², and P. C. Cardoso¹, ¹Department of Animal Sciences, University of Illinois at Urbana–Champaign, ²Bayer CropScience LP, Research Triangle Park, NC

**POSTER SESSION II: UNDERGRADUATE STUDENT
POSTER COMPETITION II**

Chair:
4:45 PM – 5:45 PM
Grand Ballroom Foyer

SCREEN

- 503 13 **Defining the Minimum Inhibitory Concentration of Synthetic and Commercial Medium-Chain Fatty Acid–Based Products against *Salmonella typhimurium*.**
E. W. Sylvester¹, R. A. Cochrane¹, R. G. Amachawadi¹, S. Remfry¹, A. B. Lerner¹, T. G. Nagaraja¹, J. Pluske², M. C. Niederwerder³, C. B. Paulk¹, C. R. Stark¹, J. C. Woodworth¹, S. S. Dritz¹, M. D. Tokach¹, J. M. DeRouchey¹, R. D. Goodband¹, and C. K. Jones¹, ¹Kansas State University, Manhattan, ²Murdoch University, Perth, WA, Australia, ³Department of Diagnostic Medicine/Pathobiology, Kansas State University, Manhattan

- 504 14 **Identification and Expression Profiling of Novel microRNAs in Pig Fetal Skeletal Muscle.**
*L. M. Ford¹, R. J. Corbett², K. R. Daza¹, N. E. Raney¹, and C. W. Ernst¹,
¹Department of Animal Science, Michigan State University, East Lansing,
²Genetics Graduate Program, Michigan State University, East Lansing*
- 505 15 **Toxic Fescue Exposure Alters Vaginal Microbial Communities of Crossbred Beef Cows.**
*A. E. Ratton¹, S. Chewing¹, L. R. Meyer¹, J. A. Atchley¹,
 J. G. Powell¹, J. D. Tucker², D. S. Hubbell III², J. Zhao¹, and
 J. E. Koltes³, ¹Department of Animal Science, Division of Agriculture,
 University of Arkansas, Fayetteville, ²Livestock and Forestry Research
 Station, Division of Agriculture, University of Arkansas, Batesville,
³Department of Animal Science, Iowa State University, Ames*
- 506 16 **Effects of Ractopamine Hydrochloride on Slice Shear Force within United States Department of Agriculture Quality Grade of Feedlot Holstein Steers.**
*T. C. Husz¹, C. J. Richards¹, C. L. Haviland¹, M. Corbin², and
 C. R. Krehbiel³, ¹Oklahoma State University, Stillwater, ²Zoetis,
 Florham Park, NJ, ³University of Nebraska–Lincoln*
- 507 17 **Changes in Ram Semen Quality between Subsequent Ejaculates.**
*D. T. Smerchek¹, P. P. Anderson¹, J. E. Held¹, A. R. Kolthoff¹,
 T. Stenberg², and G. A. Perry¹, ¹Department of Animal Science, South
 Dakota State University, Brookings, ²Volga Veterinary Clinic, Volga, SD*
- 508 18 **Influence of Postpubertal Ram Semen Quality on Ewe Conception Rates.**
*P. P. Anderson¹, D. T. Smerchek¹, J. E. Held¹, A. R. Kolthoff¹,
 T. Stenberg², and G. A. Perry¹, ¹Department of Animal Science, South
 Dakota State University, Brookings, ²Volga Veterinary Clinic, Volga, SD*
- 509 19 **Maternal Influences on Early Calf Rumens Volatile Fatty Acid Profile.**
*S. R. Powell¹, H. C. Cunningham¹, K. J. Austin¹, K. M. Cammack², and
 D. C. Rule¹, ¹Department of Animal Science, University of Wyoming,
 Laramie, ²West River Ag Center, South Dakota State University, Rapid
 City*
- 510 20 **The Effects of Moisture Addition and Dwell Time of Moisture on Pellet Quality in Corn- and Wheat-Based Diets.**
H. K. Wecker^{}, A. D. Yoder, C. K. Jones, J. C. Woodworth, C. R. Stark,
 and C. B. Paulk, Kansas State University, Manhattan*
- 511 21 **Temporal Expression Patterns of Twelve Genes during Fetal and Postnatal Skeletal Muscle Development in Pigs.**
B. A. Wolfer^{}, K. R. Daza, D. Velez-Irizarry, N. E. Raney,
 V. D. Rilmington, and C. W. Ernst, Department of Animal Science,
 Michigan State University, East Lansing*

- 512 22 **Association of Alleles at the *Leptin Receptor* Gene Locus with *Leptin Receptor* Expression and Carcass Composition Phenotypes in a Pig Resource Population.**
*T. N. Dressel**, *D. Velez-Irizarry*, *R. L. Griffin*, *B. A. Wolfer*, *N. E. Raney*, and *C. W. Ernst*, *Department of Animal Science, Michigan State University, East Lansing*
- 513 23 **Determining Potential for On-Farm Fecal Collection for DNA Extraction.**
C. S. Hall¹, *J. Farney²*, and *L. Mamedova³*, *¹Kansas State University, Udall*, *²Kansas State University, Parsons*, *³Department of Animal Sciences and Industry, Kansas State University, Manhattan*
- 514 24 **Assessment of the Iron Status of Young Pigs in a Confinement Herd.**
*T. B. Chevalier**, *H. J. Monegue*, and *M. D. Lindemann*, *University of Kentucky, Lexington*
- 515 25 **Protein Restriction Increases Liver *Fibroblast Growth Factor 21* Expression in Growing Pigs.**
G. A. Schneider¹, *A. L. Prill-Adams¹*, *J. J. Thompson¹*, *K. A. L. Hardyman¹*, *P. J. Lammers¹*, *C. D. Morrison²*, and *J. H. Hampton¹*, *¹University of Wisconsin–Platteville*, *²Pennington Biomedical Research Center, Baton Rouge, LA*
- 516 26 **Effects of Mill Type and Particle Size Variation on Growth Performance and Carcass Characteristics of Finishing Pigs.**
*M. B. Braun**, *H. K. Wecker*, *A. D. Yoder*, *J. C. Woodworth*, *C. R. Stark*, and *C. B. Paulk*, *Kansas State University, Manhattan*
- 517 27 **Amino Acid Profile of GuarPro F-71, a Potential Protein Source for Swine and Other Agricultural Animals in the United States.**
R. M. Humphrey¹, *Z. Yang¹*, *M. S. Hasan¹*, *M. A. Crenshaw¹*, *J. Brett¹*, *B. J. Rude¹*, *H. B. Bubba Burch²*, and *S. F. Liao¹*, *¹Mississippi State University, Mississippi State*, *²Nutrix Organics, USA, Lafayette, LA*

**POSTER SESSION II: NONRUMINANT NUTRITION II:
 FEED ADDITIVES I: NURSERY I**

Chair: Victor G. Perez, Pancosma

5:00 PM – 5:45 PM

Grand Ballroom Foyer

SCREEN

- 210 1 **Evaluation of Benzoic Acid as an Alternative to an Antibiotic Growth Promoter in Weaned Pigs.**
C. Voth¹, *C. Zhu¹*, *D. Wey¹*, *P. Vingerhoeds²*, *S. Borucki²*, and *E. Kiarie¹*, *¹Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, *²BSC Animal Nutrition Inc., St. Marys, ON, Canada*

- 211 2 **Effect of *Bacillus subtilis* C-3102 on Nursing Piglet Fecal Microflora, Fecal Consistency, and Growth Performance.**
*M. B. Menegat*¹, *J. M. DeRouche*¹, *J. C. Woodworth*¹, *J. Bryte*²,
*S. S. Dritz*¹, *M. D. Tokach*¹, and *R. D. Goodband*¹, ¹*Kansas State University, Manhattan*, ²*Quality Technology International, Inc., Elgin, IL*
- 212 3 **Effects of Monosodium Glutamate on Nursery Pig Performance.**
*A. B. Lerner*¹, *M. D. Tokach*¹, *J. M. DeRouche*¹, *S. S. Dritz*¹,
*J. C. Woodworth*¹, *B. D. Goodband*¹, and *K. J. Touchette*², ¹*Kansas State University, Manhattan*, ²*Ajinomoto Heartland, Inc., Chicago, IL*
- 213 4 **Effects of Different Levels of Hemeprotein Supplementation on Performance and Blood Physicochemical Parameters in Weaned Piglets.**
L. Yu, *H. Liu*, *J. Wang*^{*}, *G. Jiang*, and *G. Cheng*, *Shanghai Genon Biological Co., LTD, Shanghai, VA, China*
- 214 5 **Yeast Cell Wall Mannan-Rich Fraction Reduces the Ability of Enterotoxigenic *Escherichia coli* to Attach to Porcine Intestinal Cells.**
*K. Horgan*¹, *K. Jacques*^{*2}, and *G. Madden*³, ¹*Alltech European Bioscience Centre, Dunboyne, Ireland*, ²*Alltech, Nicholasville, KY*, ³*Alltech, Dunboyne, Ireland*
- 215 6 **Effects of Antimicrobial or Probiotics on Growth Performance of Six- to Twenty-Five-Kilogram Nursery Pigs.**
*D. J. Shawk*¹, *B. J. Feehan*¹, *O. L. Harrison*¹, *J. C. Woodworth*¹,
*M. D. Tokach*¹, *B. D. Goodband*¹, *S. S. Dritz*¹, *J. M. DeRouche*¹,
*N. E. Ward*², and *A. B. Lerner*¹, ¹*Kansas State University, Manhattan*, ²*DSM Nutritional Products, Parsippany, NJ*
- 216 7 **The Effect of Administration of a Nutrient-Dense Liquid at Weaning on Growth Performance and Morbidity and Mortality of Pigs during the Nursery Period under Commercial Conditions.**
*R. L. Schmitt*¹, *M. Ellis*¹, *O. F. Mendoza*², *C. M. Shull*², *D. McKilligan*³,
and *N. Upah*⁴, ¹*University of Illinois at Urbana-Champaign*, ²*The Maschhoffs, LLC, Carlyle, IL*, ³*Tech Mix, Ames, IA*, ⁴*TechMix Global, Stewart, MN*
- 217 8 **Effects of Dietary Vitamin E and Selenium on Growth Performance and Immune Response of Nursery Pigs following an Immune Challenge.**
C. Shili^{*}, *S. D. Carter*, *S. Schaaf*, *C. V. Cooper*, *I. Silva Lara*, and
P. Aparachita, *Oklahoma State University, Stillwater*

POSTER SESSION III: EXTENSION – BEEF/SMALL RUMINANT

Chair: Beth Ellen Doran, Iowa State University Extension

6:15 PM – 7:00 PM

Grand Ballroom Foyer

SCREEN

- 65 24 **Inactivation Kinetics of Epizootic Hemorrhagic Disease Virus by Ingredients Contained in Expect Healthy Deer Technology.**
*A. M. Gaines^{*1,2}, B. Ratliff², S. M. Goyal³, H. Aboubakr³, D. Higgins⁴, and K. Boyer⁴, ¹The Maschhoffs, LLC, Carlyle, IL, ²Hunters Pursuit, LLC, Shelbina, MO, ³College of Veterinary Medicine, University of Minnesota, Saint Paul, ⁴Real World Wildlife Products LLC, Mattoon, IL*
- 66 25 **Supplementing School Curriculum with Applied Science Principles Using a Ruminant Animal.**
E. M. Laborie¹, B. L. Plugge², R. Saner³, and D. Pesek⁴, ¹Nebraska Extension, Beaver City, NE, ²Nebraska Extension, Kearney, NE, ³Nebraska Extension, North Platte, NE, ⁴Nebraska Extension, Fairbury, NE
- 67 26 **In Vitro Rumen Gas Production and Degradability of Different Feeds in Cattle and Bison.**
K. Mjoun¹, L. Shearer¹, D. Whittington², and R. Pische², ¹Alltech, Inc., Brookings, SD, ²Hubbard, Mankato, MN

POSTER SESSION III: EXTENSION – DAIRY

Chair:

6:15 PM – 7:00 PM

Grand Ballroom Foyer

SCREEN

- 72 27 **Evaluation of Different Gas Production Models When Applied to Ruminants Feeds.**
K. Mjoun^{}, Alltech, Inc., Brookings, SD*

POSTER SESSION III: EXTENSION – SWINE I

Chair: Michael J. Rincker, DPI GLOBAL

6:15 PM – 7:00 PM

Grand Ballroom Foyer

SCREEN

- 77 13 **Returned Gilts and Their Subsequent Reproductive Performance on Commercial Farms.**
*S. Tani^{*1}, C. Piñeiro², and Y. Koketsu¹, ¹Meiji University, Kawasaki, Japan, ²PigCHAMP Pro Europa S.L., Segovia, Spain*

- 78 14 **Lameness Culling Risks and Relative Risk Ratios for Gilts and Sows on Commercial Farms.**
*S. Tani^{*1}, Y. Yatabe¹, C. Piñeiro², and Y. Koketsu¹, ¹Meiji University, Kawasaki, Japan, ²PigCHAMP Pro Europa S.L., Segovia, Spain*
- 79 15 **Effects of Age at First Breeding and Dietary Energy Level during the Rearing Period of Replacement Gilts.**
*A. Hosseindoust^{*1}, Y. Choi¹, S. Oh¹, M. Kim¹, K. Y. Kim¹, S. Hwang¹, M. Bu¹, S. K. Baidoo², B. J. Chae¹, and J. S. Kim¹, ¹Kangwon National University, Chuncheon, Republic of Korea (South Korea), ²University of Minnesota, Waseca*
- 80 16 **Do Varied Omega-6:Omega-3 Ratio Diets Have Impact on Performance, Nutrient Digestibility, Blood Characteristics, and Fecal *Escherichia coli* and *Lactobacillus* Counts in Weaned Pigs.**
J. K. Kim^{}, S. D. Upadhaya, W. L. Zhang, J. Yin, and I. H. Kim, Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*
- 81 2 **Yeast Cell Wall Mannan-Rich Fraction Reduces Growth and Enhances Antibiotic Sensitivity of Resistant Extended-Spectrum Beta-Lactamase-Producing *Escherichia coli*.**
*H. Smith¹, K. Jacques^{*2}, and R. Murphy¹, ¹Alltech, Meath, Ireland, ²Alltech, Nicholasville, KY*
- 82 18 **Effects of Dietary Lactose Levels and Supplementation of Probiotics on Growth Performance in Weanling Pigs.**
*Y. D. Jeong¹, H. S. Ko², A. Hosseindoust², Y. H. Choi², B. J. Chae², D. J. Yu¹, E. S. Cho¹, Y. H. Kim¹, S. M. Shim², C. S. Ra², Y. I. Kim³, and J. S. Kim^{*2}, ¹National Institute of Animal Science, Rural Development Administration, Cheonan, Republic of Korea (South Korea), ²Kangwon National University, Chuncheon, Republic of Korea (South Korea), ³CTC BIO, Inc., Seoul, Republic of Korea (South Korea)*
- 83 20 **Effect of Dietary Protected Organic Acids on Growth Performance and Fecal Microflora in Weanling Pigs.**
D. J. Lee^{}, Y. Yang, H. I. Jung, D. H. Nguyen, and I. H. Kim, Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*
- 84 21 **Effect of Dietary Ractopamine Supplementation on Growth Performance, Meat Quality, Carcass Characteristics, and Fecal Score in Finishing Pigs.**
H. Y. Sun, D. J. Lee^{}, H. Shi, H. I. Jung, and I. H. Kim, Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*
- 85 17 **Effects of the Inclusion of a Vitamin B₂ Byproduct on Growth Performance, Blood Profiles, and Meat Quality in Growing-Finishing Pigs.**
H. Shi, J. K. Kim^{}, S. Serpunja, J. Hu, and I. H. Kim, Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*

- 86 22 **Influence of Protease Supplementation to Corn–Soybean Meal–Based High- and Low-Energy Diets on Growth Performance, Nutrient Digestibility, Blood Profiles, and Gas Emission in Growing Pigs.**
D. H. Nguyen, D. J. Lee, H. Y. Sun, Y. Yang, and I. H. Kim, Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*
- 87 23 **Effect of Nucleotides Supplementation to a Corn–Soybean Meal–Based Diet on Growth Performance, Fecal Microflora, and Blood Profiles in Sows and Their Piglets.**
Y. Jiao, D. J. Lee, J. K. Kim, X. X. Liang, J. Y. Zhang, and I. H. Kim, Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*

**POSTER SESSION III: NONRUMINANT NUTRITION III:
 FEED ADDITIVES II: NURSERY II**

Chair:
 6:15 PM – 7:00 PM
 Grand Ballroom Foyer

SCREEN

- 218 1 **The Impacts of Yeast Cell Wall Mannan-Rich Fraction on Porcine Intestinal Barrier Function following Exposure to *Salmonella* Lipopolysaccharide.**
K. Horgan¹, S. McKelvey¹, and K. Jacques^{2}, ¹Alltech European Bioscience Centre, Dunboyne, Ireland, ²Alltech, Nicholasville, KY*
- 219 19 **Effect of a Peptide Product (FPM), Zinc Oxide, and a *Lactobacillus acidophilus*–Fermented Product on Growth Performance of Nursery Pigs.**
T. Tsai¹, J. P. Knapp¹, J. J. Chewing², T. Shieh³, and C. V. Maxwell¹, ¹Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, ²Swine Research Services, Inc., Springdale, AR, ³Vitech Bio-Chem Corp., Glendale, CA
- 220 3 **Effects of Outpace Feed Additive on Nursery Pig Performance.**
C. V. Cooper, S. D. Carter, and P. Aparachita, Oklahoma State University, Stillwater*

POSTER SESSION III: NONRUMINANT NUTRITION IV: MINERALS

Chair:

6:15 PM – 7:00 PM

Grand Ballroom Foyer

SCREEN

- 224 4 **Evaluation of Elarom SES with or without Tribasic Copper Chloride on Nursery Pig Growth Performance.**
H. E. Williams, J. C. Woodworth, J. M. DeRouche, S. S. Dritz, M. D. Tokach, and R. D. Goodband, Kansas State University, Manhattan*
- 229 5 **Effect of Dietary Chromium Propionate and *Yucca schidigera* on Finishing Pig Growth Performance.**
J. T. Gebhardt¹, J. C. Woodworth¹, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouche¹, J. A. Loughmiller², A. L. P. De Souza², M. J. Rincker³, and R. D. Goodband¹, ¹Kansas State University, Manhattan, ²Kemin Industries, Des Moines, IA, ³DPI GLOBAL, Porterville, CA
- 225 6 **Effects of Zinc Oxide, Zinc Hydroxychloride, and Tribasic Copper Chloride on Nursery Pig Performance.**
H. S. Cemin¹, J. C. Woodworth¹, M. D. Tokach¹, S. S. Dritz¹, J. M. DeRouche¹, R. D. Goodband¹, and J. L. Usry², ¹Kansas State University, Manhattan, ²Micronutrients, Inc., Indianapolis, IN
- 222 7 **Effects of Increasing Chloride from Potassium Chloride on Seven- to Twelve-Kilogram Nursery Pig Growth Performance.**
D. J. Shawk¹, K. N. Nemecek¹, B. D. Goodband¹, J. C. Woodworth¹, M. D. Tokach¹, S. S. Dritz¹, K. Chitakasempornkul¹, N. M. Bello², and J. M. DeRouche¹, ¹Kansas State University, Manhattan, ²Department of Statistics, Kansas State University, Manhattan
- 221 8 **In Vitro Prediction of Standardized Total Tract Digestibility of Phosphorus among Sources of Animal Protein Meals.**
J. Zhu¹, B. J. Kerr², G. C. Shurson¹, and P. E. Urriola¹, ¹Department of Animal Science, University of Minnesota, Saint Paul, ²USDA-ARS, Ames, IA
- 223 9 **Impact of Added Copper and Chlortetracycline on Growth Performance of Nursery Pigs.**
M. B. Menegat, J. C. Woodworth, S. S. Dritz, R. G. Amachawadi, T. G. Nagaraja, K. Capps, M. D. Tokach, J. M. DeRouche, and R. D. Goodband, Kansas State University, Manhattan*
- 228 10 **Replacement of Zinc Oxide with Encapsulated Zinc Oxide on Growth Performance in Early-Weaned Pigs.**
S. K. Baidoo¹, X. Yang¹, D. P. Pangeni¹, H. Manu¹, Q. Huang¹, and S. Wu², ¹University of Minnesota, Waseca, ²Guangzhou Wisdom Bio-Technology Co., Ltd., Guangzhou, China

- 226 11 **Effect of Dietary Mineral Source on the Clearance Time of Porcine Epidemic Diarrhea Virus in the Saliva of Commercial Gilts.**
B. Haberl¹, K. R. Perryman², and J. L. Usry², ¹Iowa Select Farms, Iowa Falls, IA, ²Micronutrients, Inc., Indianapolis, IN
- 227 12 **Determination of the Efficacy of Titrated Levels of a Water-Soluble Zinc Amino Acid Complex on Immune Response of Nursery Pigs.**
*P. Aparachita*¹, S. D. Carter¹, C. V. Cooper¹, I. Silva Lara¹, A. Sawyer¹, Z. J. Rambo², and T. L. Ward², ¹Oklahoma State University, Stillwater; ²Zinpro Corporation, Eden Prairie, MN*

DRAFT

POSTER SESSIONS

TUESDAY, MARCH 13, 2018

POSTER SESSION IV: EQUINE

Chair:
7:30 AM – 8:15 AM
Grand Ballroom Foyer

SCREEN

- 54 25 **Effect of Direct-Fed Microbials on Apparent Nutrient Digestibility and the Fecal Microbial Population in the Sedentary Horse.**
*C. A. Phillips**, *C. A. Cavinder*, *B. J. Rude*, *E. Memili*, and *T. Smith*,
Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State
- 55 26 **Effect of Cobalt Chloride on Fermentation of Alfalfa and Smooth Bromegrass Hay by Equine Cecal Microorganisms.**
*L. K. Fehlberg**, *Kansas State University, Manhattan*

POSTER SESSION IV: EXTENSION – SWINE II

Chair:
7:30 AM – 8:15 AM
Grand Ballroom Foyer

SCREEN

- 88 13 **Rye for Sows.**
*G. Sørensen*¹* and *S. J. W. Nyman²*, ¹*SEGES, Copenhagen, Denmark*,
²*KWS Scandinavia A/S, Vejle, Denmark*
- 89 14 **Incidence and Risk Factors for Prolapse in Spanish Female Breeding Pig Herds.**
R. Iida¹, *C. Piñeiro²*, and *Y. Koketsu*¹*, ¹*Meiji University, Kawasaki, Japan*, ²*PigCHAMP Pro Europa S.L., Segovia, Spain*
- 90 15 **Evaluating Body Condition of Group-Housed Gestating Sows: Sow Caliper Measurements versus Backfat Thickness and Visual Scores.**
*Y. Li*¹*, *S. Cui¹*, *X. Yang²*, *S. K. Baidoo²*, and *L. J. Johnston¹*, ¹*West Central Research and Outreach Center, University of Minnesota, Morris*, ²*Southern Research and Outreach Center, University of Minnesota, Waseca*
- 91 16 **Floor Space Allocation Effects on Heavy-Weight Finishing Pigs (over One Hundred Thirty-Five Kilograms).**
*R. Samuel**, *B. C. Thaler*, *C. L. Levesque*, and *J. Darrington*, *South Dakota State University, Brookings*

- 92 17 **Effects of Supplemental Phytoncide Instead of Zinc Oxide on Growth Performance, Apparent Nutrient Digestibility, Blood Profiles, and Fecal Microflora in Growing Pigs.**
*J. K. Kim**, *J. Y. Zhang*, *X. Z. Hao*, *H. M. Kim*, and *I. H. Kim*,
Department of Animal Resources Science, Dankook University,
Cheonan-si, Republic of Korea (South Korea)
- 93 20 **Effects of Yeast Culture (*Saccharomyces cerevisiae*) Supplementation on Growth Performance, Fecal Score, and Nutrient Digestibility of Weaning Pigs.**
*D. J. Lee**, *X. Liu*, *H. Y. Sun*, *J. W. Park*, and *I. H. Kim*, *Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*
- 94 21 **Effect of Diets with Probiotics Complex (*Bacillus subtilis* and *Bacillus licheniformis*) Supplementation on Reproduction Performance, Nutrient Digestibility, Blood Profile, Fecal Noxious Gas Emission, and Fecal Microflora in Lactation Sows and Sucking Piglets.**
J. Hu, *D. J. Lee**, *Y. M. Kim*, *L. Cheng*, and *I. H. Kim*, *Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*
- 95 18 **Evaluation of Expanded Diet and Different Phase-Feeding Programs in Growing-Finishing Pigs.**
X. Lei, *J. K. Kim**, *K. A. Kim*, *I. H. Kim*, and *Y. Jiao*, *Department of Animal Resources Science, Dankook University, Cheonan-si, Republic of Korea (South Korea)*
- 96 22 **Growth Performance, Nutrient Digestibility, Fecal Microbiota, and Fecal Noxious Gas Emission in Weaning Pigs Fed High- and Low-Density Diets with and without Protected Organic Acid Blends.**
S. D. Upadhaya, *D. J. Lee**, *Y. Jiao*, *H. M. Kim*, and *I. H. Kim*,
Department of Animal Resources Science, Dankook University,
Cheonan-si, Republic of Korea (South Korea)
- 97 9 **Effects of Betaine and Superdosed Phytase Supplementation on Semen Quality of Boars during and after Mild Heat Stress.**
D. W. Lugar¹, *T. Gellert¹*, *J. A. Proctor¹*, *P. Wilcock²*, *B. T. Richert¹*,
and *K. R. Stewart³*, ¹*Purdue University, West Lafayette, IN*, ²*AB Vista,*
Marlborough, United Kingdom, ³*Department of Animal Sciences,*
Purdue University, West Lafayette, IN
- 98 23 **Sow Functional Teat Number Impacts Colostrum Intake and Piglet Throughput.**
*J. G. Wiegert** and *M. T. Knauer*, *North Carolina State University, Raleigh*
- 99 24 **Evaluation of the Accuracy and Precision of Quick Tests and Labs Currently Testing Deoxynivalenol.**
*S. A. Weiland**, *NutriQuest, Mason City, IA*

**POSTER SESSION IV: NONRUMINANT NUTRITION V:
FEED ADDITIVES III: MYCOTOXINS**

Chair:
7:30 AM – 8:15 AM
Grand Ballroom Foyer

SCREEN

- 230 1 **Effect of Cleaning Corn on Mycotoxin Concentration.**
*A. D. Yoder**, *C. R. Stark*, *J. M. DeRouche*, *M. D. Tokach*, and
C. K. Jones, *Kansas State University, Manhattan*
- 231 2 **Effect of Feeding a Blend of Naturally Contaminated Corn on
Nutrient Digestibility and Feed Preference in Weanling Pigs.**
*Y. D. Jang**, *C. S. Escobar*, and *M. D. Lindemann*, *University of
Kentucky, Lexington*
- 233 4 **The Impact of a Sulfur-Containing Preservative Blend on Growth
Performance of Growing Pigs (Thirty to One Hundred Kilograms)
Fed Diets Containing Deoxynivalenol.**
S. M. Ebarb¹, *C. M. Fowler¹*, *P. Xue¹*, *S. B. Williams¹*, *J. C. Peters¹*, and
D. W. Giesting², ¹*Provimi, Brookville, OH*, ²*Cargill Animal Nutrition,
Hopkins, MN*
- 235 6 **Evaluation of Dietary Phytochemicals on Growth Performance and
Carcass Characteristics of Pigs during the Growing–Finishing
Phase.**
*J. A. Soto**, *M. D. Tokach*, *S. S. Dritz*, *J. C. Woodworth*, *J. M. DeRouche*,
and *B. D. Goodband*, *Kansas State University, Manhattan*
- 236 7 **Dietary Supplementation of Choline and Potassium in Low Crude
Protein Diets on Growth and Carcass Performance of Finishing
Pigs.**
*J. A. Soto**, *M. D. Tokach*, *S. S. Dritz*, *J. C. Woodworth*, *J. M. DeRouche*,
and *B. D. Goodband*, *Kansas State University, Manhattan*
- 232 3 **Effects of Added Defusion or Feed Aid on Finishing Pig Growth
Performance from Twenty to One Hundred Ten Kilograms.**
*D. J. Hawk**, *S. S. Dritz*, *M. D. Tokach*, *J. C. Woodworth*, *B. D. Goodband*,
and *J. M. DeRouche*, *Kansas State University, Manhattan*
- 237 8 **Umami Sensory Stimulation Improves Nutrient Digestibility in Pigs.**
G. Tedo¹, *A. Mereu^{1,2}*, *I. Fernandez-Figares Ibanez³*, *M. Lachica³*,
L. González-Valero³, *F. Bargo¹*, *I. R. Ipharraguerre^{1,4}*, and *S. Morais¹*,
¹*Innovation Division, Lucta S.A., Barcelona, Spain*, ²*present address:
Yara International, Oslo, Norway*, ³*Estación Experimental del
Zaidín (CSIC), Granada, Spain*, ⁴*present address: Christian-Alberts
University, Kiel, Germany*

- 238 19 **A Novel, Non-Antimicrobial Protein Improves Growth Performance and Immune Responses of Pigs Experimentally Infected with Porcine Reproductive and Respiratory Syndrome Virus.**
*R. Song¹, T. Holck², S. M. Sinn¹, R. E. Musser¹, and K. G. Friesen¹,
¹NutriQuest, Mason City, IA, ²Feed His People, Gilbert, IA*
- 240 11 **Effect of Dietary Emulsifiers with Different Hydrophilic–Lipophilic Balance Values on Growth Performance, Nutrient Digestibility, Serum Lipid Profiles, and Meat Quality of Broilers.**
D. J. Lee^{}, S. D. Upadhaya, J. Y. Zhang, D. H. Nguyen, and I. H. Kim,
 Department of Animal Resources Science, Dankook University,
 Cheonan-si, Republic of Korea (South Korea)*
- 241 12 **Effect of Nondairy Creamer Supplementation to a Corn–Soybean Meal–Based Diet on Growth Performance, Nutrient Digestibility, and Meat Quality in Broilers.**
H. Y. Sun^{}, J. K. Kim, H. M. Kim, J. W. Park, and I. H. Kim,
 Department of Animal Resources Science, Dankook University,
 Cheonan-si, Republic of Korea (South Korea)*
- 234 5 **Effects of Sulfur-Containing Preservative Blends or Sodium Metabisulfite with or without a Yeast Derivative on Nursery Pig Performance When Challenged with Diets Containing an Elevated Level of Deoxynivalenol.**
*S. M. Ebarb¹, C. M. Fowler^{*1}, S. B. Williams¹, and D. W. Giesting²,
¹Provimi, Brookville, OH, ²Cargill Animal Nutrition, Hopkins, MN*
- 239 10 **Effects of a Blend of Phytonutrients (Lean Fuel) on Performance and Market Weight in Finisher Pigs during the Late Finishing Phase Compared with a 1,500 Kilocalorie and a 1,600 Kilocalorie Diet.**
M. R. Bible^{}, J. Y. Jacela, S. J. England, T. M. Fakler, K. T. Soltwedel,
 and F. B. Sandberg, Furst-McNess Company, Freeport, IL*

POSTER SESSION IV: TEACHING I

Chair:

**7:30 AM – 8:15 AM
 Grand Ballroom Foyer**

SCREEN

- 464 27 **Use of Formative Assessment Methods to Improve Student Perception and Performance in an Introductory Animal Science Laboratory Course.**
A. N. Abrams^{}, R. A. Nold, and M. G. Gonda, Department of Animal
 Science, South Dakota State University, Brookings*

**POSTER SESSION V:
ANIMAL BEHAVIOR, HOUSING, AND WELL-BEING**

Chair: Kurt Vogel, University of Wisconsin–River Falls
12:45 PM – 1:30 PM
Grand Ballroom Foyer

SCREEN

- 1 17 **Changes in Kinematic Measurements from Nursery through Finishing for a Mixed Group of Pigs.**
*A. Tinkle^{*1}, M. E. Wilson², Z. J. Rambo², D. J. Bloxham¹, C. M. De Mille¹, K. J. Duberstein¹, M. J. Azain¹, and C. R. Dove¹, ¹University of Georgia, Athens, ²Zinpro Corporation, Eden Prairie, MN*
- 2 18 **The Effects of Training on Kinematics in a Mixed Group of Grower Pigs Using Negative Reinforcement and Positive Punishment over a Week.**
*A. Tinkle^{*1}, M. E. Wilson², Z. J. Rambo², D. J. Bloxham¹, C. M. De Mille¹, A. Yin¹, C. Nunn¹, C. Edmunds¹, K. J. Duberstein¹, M. J. Azain¹, and C. R. Dove¹, ¹University of Georgia, Athens, ²Zinpro Corporation, Eden Prairie, MN*
- 3 19 **Comparison of Hair Cortisol Levels and Body Temperature Response before and after Heat Stress and Water Deprivation in Holstein Dairy Cows.**
J. Ghassemi Nejad¹, K. I. Sung², B. H. Lee², J. L. Peng², J. Y. Kim², B. Chemere², S. M. Oh², M. J. Kim¹, S. C. Kim², and B. W. Kim², ¹Institute of Animal Resources, Kangwon National University, Chuncheon, Republic of Korea (South Korea), ²College of Animal Life Sciences, Kangwon National University, Chuncheon, Republic of Korea (South Korea)
- 4 20 **Effect of Piglet Birth Weight on Postnatal Changes in Body Temperature.**
N. C. Cooper^{}, M. Ellis, Y. Xiong, and R. Gates, University of Illinois at Urbana–Champaign*
- 5 21 **Relationships between Residual Feed Intake and Other Biological Variables.**
*M. E. Wilson^{*1}, D. Lay², and S. A. Enneking², ¹West Virginia University, Morgantown, ²USDA–ARS, West Lafayette, IN*
- 6 22 **Evaluation of the Effect of Farrowing Pen Width on Piglet Preweaning Mortality.**
*H. M. Harper^{*1}, K. D. Vande Pol¹, A. L. Ludwig, M. Ellis¹, A. M. Gaines², B. A. Peterson², and C. M. Shull², ¹University of Illinois at Urbana–Champaign, ²The Maschhoffs, LLC, Carlyle, IL*
- 7 23 **Measuring Postnatal Changes in Piglet Body Temperature.**
N. C. Cooper^{} and M. Ellis, University of Illinois at Urbana–Champaign*

POSTER SESSION V: ANIMAL BREEDING AND GENETICS

Chair:

12:45 PM – 1:30 PM
Grand Ballroom Foyer

SCREEN

- 22 8 **Evaluation of Current United States Swine Selection Indexes and Indexes Designed for Chinese Pork Production.**
J. Cheng¹, Department of Animal Sciences, Purdue University, West Lafayette, IN
- 23 9 **Effect of Genetic Response to Endophyte-Infected Fescue on Beef Cattle Gastrointestinal Tract Microbiota.**
*L. R. Koester^{*1}, D. H. Poole², N. V. L. Serão³, and S. Schmitz-Esser⁴,
¹Interdepartmental Microbiology Graduate Program, Iowa State University, Ames, ²Department of Animal Sciences, North Carolina State University, Raleigh, ³Iowa State University, Ames, ⁴Department of Animal Science, Iowa State University, Ames*
- 24 10 **Unravelling Genomic Regions with Transmission Ratio Distortion: Identification of Candidate Lethal Alleles in Cattle.**
*S. Id-Lahoucine¹, J. Casellas², P. Fonseca³, F. Miglior⁴, M. Sargolzaei³, L. F. Brito³, S. P. Miller⁵, F. S. Schenkel³, V. H. Asselstine⁶, J. P. Chesnais⁷, M. Lohuis⁸, J. F. Medrano⁹, and A. Cánovas^{*3}, ¹University of Guelph, Guelph, ON, Canada, ²Universitat Autònoma de Barcelona, Bellaterra, Spain, ³Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, ⁴Canadian Dairy Network, Guelph, ON, Canada, ⁵Angus Genetics Inc., St. Joseph, MO, ⁶Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, ⁷The Semex Alliance, Guelph, ON, Canada, ⁸Semex, Guelph, ON, Canada, ⁹Department of Animal Science, University of California, Davis*
- 25 11 **Functional Characterization of Genes Mapped in Transmission Ratio Distortion Regions of the Bovine Genome Affecting Reproduction.**
*P. A. D. S. Fonseca¹, S. Id-Lahoucine², J. Casellas³, F. Miglior⁴, A. Reverter⁵, M. R. Fortes⁶, L. T. Nguyen⁷, L. R. Porto-Neto⁵, M. Sargolzaei², L. F. Brito², S. P. Miller⁸, F. S. Schenkel², M. Lohuis⁹, J. F. Medrano¹⁰, and A. Canovas^{*2}, ¹University of Guelph, Guelph, ON, Canada, ²Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, ³Universitat Autònoma de Barcelona, Bellaterra, Spain, ⁴Canadian Dairy Network, Guelph, ON, Canada, ⁵CSIRO Agriculture, Brisbane, QLD, Australia, ⁶Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, St Lucia, QLD, Australia, ⁷School of Chemistry and Molecular Biosciences, The University of Queensland, St Lucia, QLD, Australia, ⁸Angus Genetics Inc., St. Joseph, MO, ⁹Semex, Guelph, ON, Canada, ¹⁰Department of Animal Science, University of California, Davis*

**POSTER SESSION V: GROWTH, DEVELOPMENT,
MUSCLE BIOLOGY, AND MEAT SCIENCE I**

Chair:

12:45 PM – 1:30 PM
Grand Ballroom Foyer

SCREEN

- 184 12 **Pigs Fed Fifteen Milligrams per Kilogram Skycis (Narasin) Have Similar Viscera Weight, Carcass Composition, and Lean Quality Compared to Controls, but Prominent Gender Differences Exist in Carcass Composition: I.**
K. E. Shircliff¹, S. N. Carr², G. L. Allee³, and B. R. Wiegand¹, ¹Division of Animal Sciences, University of Missouri, Columbia, ²Elanco Animal Health, Greenfield, IN, ³Pork Tech, LLC, Columbia, MO
- 185 13 **Pigs Fed Fifteen Milligrams per Kilogram Skycis (Narasin) Have Similar Viscera Weight, Carcass Composition, and Lean Quality Compared to Controls, but Prominent Gender Differences Exist in Carcass Composition: II.**
K. E. Shircliff¹, S. N. Carr², G. L. Allee³, and B. R. Wiegand¹, ¹Division of Animal Sciences, University of Missouri, Columbia, ²Elanco Animal Health, Greenfield, IN, ³Pork Tech, LLC, Columbia, MO
- 186 14 **Comparisons of Correlations among Early and Aged Pork Quality Traits for Loin Chops Aged as Intact Loins or in Case-Ready Packages.**
*B. J. Klehm^{*1}, M. F. Overholt¹, D. A. Mohrhauser², D. A. King³, A. C. Dilger¹, S. D. Shackelford³, and D. D. Boler¹, ¹University of Illinois at Urbana-Champaign, ²Smithfield Foods, Denison, IA, ³USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE*
- 187 15 **Dietary High Oleic Soybean Oil: Growth Performance, Carcass Performance, and Meat Quality of Market Lambs.**
*D. L. Belon^{*1}, T. E. Peckman², M. C. Shane², B. R. Wiegand², and J. W. Rickard¹, ¹Department of Agriculture, Illinois State University, Normal, ²Division of Animal Sciences, University of Missouri, Columbia*
- 188 16 **Effect of Sporadic Wet Brewer's Grain Inclusion on the Growth Performance and Carcass Performance of Heavy Finishing Cattle.**
R. T. Parmenter^{}, D. M. James, D. L. Belon, A. M. Kolet, and J. W. Rickard, Department of Agriculture, Illinois State University, Normal*

**POSTER SESSION V:
NONRUMINANT NUTRITION VI: ENZYMES**

Chair:
12:45 PM – 1:30 PM
Grand Ballroom Foyer

SCREEN

- 275 1 **Comparison between a Novel Phytase and a Commercial Phytase on Growth Performance and Bone Measurements in Diets Fed to Growing Pigs.**
*C. J. Munoz Alfonso^{*1}, L. Blavi¹, J. N. Broomhead², and H. H. Stein¹,
¹University of Illinois at Urbana–Champaign, ²Agrivida, Medford, MA*
- 280 6 **Evaluation of Performance in Broilers Fed Corn–Soybean Meal–Based Diets Supplemented with Multiple Enzymes.**
J. K. Kim^{}, S. D. Upadhaya, H. Shi, Y. M. Kim, and I. H. Kim,
Department of Animal Resources Science, Dankook University,
Cheonan-si, Republic of Korea (South Korea)*
- 281 7 **Effect of Dietary Supplementation of β -Glucanase on Growth Performance, Carcass Quality, Blood Profiles, Noxious Gas Emission, Ileum Viscosity, and Nutrient Digestibility in Broilers.**
H. Y. Sun^{}, J. K. Kim, K. A. Kim, S. Q. Huang, and I. H. Kim,
Department of Animal Resources Science, Dankook University,
Cheonan-si, Republic of Korea (South Korea)*
- 276 2 **The Effect of Superdosing Phytase from One Hundred Nine Days of Gestation through Lactation on Farrowing Duration and Piglet and Sow Performance.**
*H. Manu^{*1}, D. Pangen¹, P. Wilcock², and S. K. Baidoo¹,
¹Southern Research and Outreach Center, University of Minnesota, Waseca, ²AB Vista, Marlborough, United Kingdom*
- 278 4 **Effects of Extrusion and Microbial Phytase on the Apparent and Standardized Total Tract Digestibility of Phosphorus in Hemp Hulls Fed to Growing Pigs.**
*J. W. Kim^{*1} and C. M. Nyachoti²,
¹University of Manitoba, Winnipeg, MB, Canada, ²Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada*
- 277 3 **The Effect of Corn-Expressed Phytase Supplementation in Adequate or Low Levels of Phosphorous and Calcium Diets on Growth Performance and Bone Ash of Nursery Pigs.**
*J. P. Knapp^{*1}, T. Tsai¹, J. N. Broomhead², C. V. Maxwell¹, and
J. J. Chewning³,
¹Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, ²Agrivida, Medford, MA, ³Swine Research Services, Inc., Springdale, AR*

- 279 5 **Amino Acid Digestibility of a Modified Corn Byproduct (Gold Pro) with and without a Multienzyme Supplement (CORE) When Fed to Weanling Pigs.**
K. T. Soltwedel¹, F. B. Sandberg¹, W. B. Kwon², H. H. Stein², S. J. England¹, M. R. Bible¹, T. M. Fakler¹, and J. Y. Jacela¹. ¹Furst-McNess Company, Freeport, IL, ²University of Illinois at Urbana-Champaign

POSTER SESSION V: PHYSIOLOGY I

Chair:

12:45 PM – 1:30 PM
 Grand Ballroom Foyer

SCREEN

- 379 24 **Treatment for Bovine Pathogenic Diseases during the First Year of Life Does Not Alter Antral Follicle Counts in Angus Heifers at a Year of Age.**
R. A. Cushman and L. A. Kuehn, USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE*
- 380 25 **Factors Affecting Computer-Assisted Sperm Analysis Measurements for Porcine Spermatozoa.**
D. Zaritskiy and W. L. Flowers, North Carolina State University, Raleigh*
- 381 26 **The Nebraska Ranch Practicum: An Insight into Cow and Calf Production from Varying Precipitation and Two Weaning Dates.**
S. A. Springman¹, D. C. Adams², J. D. Volesky², J. T. Mulliniks², and R. N. Funston². ¹University of Nebraska-Lincoln, ²University of Nebraska West Central Research and Extension Center, North Platte
- 382 27 **The Effect of In Vivo Estrogen Treatment on Uterine Cell Proliferation in Ovariectomized Romanov Ewes.**
K. Kelany¹, M. A. Vasquez¹, M. L. Bauer¹, K. C. Swanson², S. T. Dorsam¹, V. A. Valkov¹, A. Reyaz¹, A. Grazul-Bilska², and K. A. Vonnahme². ¹North Dakota State University, Fargo, ²Department of Animal Sciences, North Dakota State University, Fargo

**POSTER SESSION VI: GROWTH, DEVELOPMENT,
MUSCLE BIOLOGY, AND MEAT SCIENCE II**

Chair:

5:00 PM – 5:45 PM

Grand Ballroom Foyer

SCREEN

- 196 12 **Display Life and Oxidation of Beef from Cattle Fed Corn Distiller's Byproducts.**
*K. Hart**, *F. A. Ribeiro*, *M. Henriott*, *N. J. Herrera*, and *C. R. Calkins*,
University of Nebraska–Lincoln
- 197 13 **Added Fat Fed with Thirty Percent Dried Distiller's Grains with Solubles to Pigs Alters Fatty Acid Composition in Four Fat Depots but Does Not Change Carcass Composition or Quality.**
K. E. Shircliff¹, *G. L. Allee²*, and *B. R. Wiegand¹*, ¹*Division of Animal Sciences, University of Missouri, Columbia*, ²*Pork Tech, LLC, Columbia, MO*
- 198 14 **Inactivation of the Gene α -1,3-Galactosyltransferase in Bovine Aortic Smooth Muscle Cells Using CRISPR-Cas9.**
*X. Wang**, *J. A. Apple*, and *Y. Huang*, *Department of Animal Science, University of Arkansas, Fayetteville*
- 199 15 **Comparative Analysis of the Porcine IGF2-G3072A Mutation and Reduced Myostatin Function on Carcass and Meat Quality Characteristics.**
*L. T. Honegger**, *B. N. Harsh*, *J. E. Beever*, *D. D. Boler*, and *A. C. Dilge*, *University of Illinois at Urbana–Champaign*
- 200 16 **Effects of Bull/Cow Trim and Finely Textured Beef on Cooked Color.**
C. A. Althaber¹, *J. A. Apple²*, *J. W. S. Yancey³*, *T. Johnson¹*, and *T. W. Glascock³*, ¹*Division of Agriculture, University of Arkansas, Fayetteville*, ²*Department of Animal Science, University of Arkansas, Fayetteville*, ³*Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville*

**POSTER SESSION VI: NONRUMINANT NUTRITION VII:
FEED PROCESSING AND INGREDIENTS**

Chair:

5:00 PM – 5:45 PM

Grand Ballroom Foyer

SCREEN

- 320 2 **Nutrient Digestibility of Heat- or Heat plus Citric Acid–Pretreated Distiller's Dried Grains with Solubles for Pigs.**
*C. Zangaro** and *T. A. Woyengo*, *South Dakota State University, Brookings*

- 321 3 **Digestibility of Amino Acids, Energy, Fat, and Fiber and Digestible and Metabolizable Energy in Low-Oil Distiller's Dried Grains with Solubles Fed to Growing Pigs.**
*S. A. Lee**, *C. D. Espinosa*, and *H. H. Stein*, *University of Illinois at Urbana-Champaign*
- 328 10 **Utilization of Enzymatically Digested Food Waste in Growing-Finishing Pigs. 2. Meat Quality and Fatty Acid Profiles.**
*C. Jimno*¹, *D. Morash*², and *Y. Liu*¹, ¹*University of California, Davis*, ²*California Safe Soil, LLC, McClellan, CA*
- 325 7 **Effects of Different Levels of Full-Fat Rice Bran or Defatted Rice Bran on Growth Performance and Carcass Quality of Pigs.**
*G. A. Casas*¹ and *H. H. Stein*², ¹*Universidad Nacional de Colombia, Bogota, Colombia*, ²*University of Illinois at Urbana-Champaign*
- 326 8 **Chemical Composition and Digestibility of Energy, Dry Matter, Amino Acids, and Fiber in Wheat Middlings and Red Dog Fed to Growing Pigs.**
*G. A. Casas*¹, *D. A. Rodriguez*², and *H. H. Stein*², ¹*Universidad Nacional de Colombia, Bogota, Colombia*, ²*University of Illinois at Urbana-Champaign*
- 327 9 **Growth Performance of Weaned Pigs Fed Raw or Extruded Canola Meal with Low to High Extrusion Intensity.**
*C. M. E. Heyer*¹, *L. F. Wang*¹, *E. Beltranena*², and *R. T. Zijlstra*¹, ¹*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, ²*Alberta Agriculture and Forestry, Edmonton, AB, Canada*
- 322 4 **Effects of Feeding High-Protein Distiller's Dried Grains on Growth Performance and Carcass Characteristics of Growing-Finishing Pigs.**
*Z. Yang*¹, *P. E. Urriola*¹, *Z. K. Zeng*¹, *A. M. Hilbrands*², *L. J. Johnston*², and *G. C. Shurson*¹, ¹*Department of Animal Science, University of Minnesota, Saint Paul*, ²*West Central Research and Outreach Center, University of Minnesota, Morris*
- 324 6 **High-Protein Distiller's Dried Grains with Solubles Produced Using a Novel Front-End-Back-End Fractionation Technology Has Greater Nutritional Value Than Conventional Distiller's Dried Grains with Solubles When Fed to Growing Pigs.**
*C. D. Espinosa** and *H. H. Stein*, *University of Illinois at Urbana-Champaign*
- 323 5 **Digestibility of Amino Acids, Fiber, and Fat and Concentrations of Digestible and Metabolizable Energy in Two Sources of Distiller's Dried Grains with Solubles Fed to Growing Pigs.**
*D. A. Rodriguez**, *S. A. Lee*, and *H. H. Stein*, *University of Illinois at Urbana-Champaign*
- 329 11 **Optimization of Aqueous and Lipid-Soluble Extraction Methods for Alfalfa (*Medicago sativa*).**
*K. Fries** and *E. A. Bobeck*, *Iowa State University, Ames*

- 319 1 **The Effect of Hammer Mill Screen Hole Diameter and Hammer Tip Speed on Particle Size and Flowability of Ground Corn.**
*C. E. Evans**, *M. Saensukjaroenphon*, *K. H. Sheldon*, *C. B. Paulk*, and *C. R. Stark*, *Kansas State University, Manhattan*

POSTER SESSION VI: RUMINANT NUTRITION I

Chair: Mary E. Drewnoski, University of Nebraska–Lincoln
5:00 PM – 5:45 PM
Grand Ballroom Foyer

SCREEN

- 434 17 **Effect of Supplementation of Chelated Trace Minerals on Reproductive Performance of Beef Cattle.**
*R. S. Stokes*¹, *H. Tucker*², and *D. W. Shike*³, ¹*University of Illinois at Urbana–Champaign*, ²*Novus International, Inc., Saint Charles, MO*, ³*Department of Animal Sciences, University of Illinois at Urbana–Champaign*
- 435 18 **Effect of *Saccharomyces cerevisiae* Fermentation Products on Performance and Plasma Glucose and Nonesterified Fatty Acid Concentration in Bottle-Fed Calves.**
*L. Pisoni**, *K. V. Whinnery*, and *A. E. Relling*, *Department of Animal Sciences, The Ohio State University, Wooster*
- 436 19 **Effect of a Combination of Live Yeast and Yeast Cell Wall Products Supplemented before and after Weaning on Immune Function in Heifer Calves.**
*E. A. Palmer*¹, *E. B. Kegley*¹, *P. A. Beck*², *J. J. Ball*¹, *J. A. Hornsby*¹, *J. L. Reynolds*¹, *B. P. Shoulders*¹, *M. D. Cravey*³, and *J. G. Powell*¹, ¹*Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville*, ²*University of Arkansas Division of Agriculture Southwest Research and Extension Center, Hope*, ³*Phileo Lesaffre Animal Care, Milwaukee, WI*
- 437 20 **NaturSafe Increases Volatile Fatty Acid Production across Various Beef Diets In Vitro.**
*J. M. Butler**, *T. Kwan*, *C. Reedy*, *T. Werner*, *C. R. Belknap*, and *I. Yoon*, *Diamond V, Cedar Rapids, IA*
- 438 21 **Feeding an Essential Oils Blend to Neonatal Holstein Dairy Calves Increased Rumen Propionate Concentration and Resulted in Higher Representation of a Previously Uncharacterized Strain of *Prevotella ruminicola*.**
*P. Poudel*¹, *K. Froehlich*², *D. P. Casper*³, and *B. St-Pierre*⁴, ¹*Department of Animal Science, South Dakota State University, Brookings*, ²*Lincoln University, Lincoln, New Zealand*, ³*Furst-McNess Company, Freeport, IL*, ⁴*South Dakota State University, Brookings*

- 439 22 **Metagenomic Analysis of an Uncharacterized Rumen Bacterial Species Associated with Feeding Diets with Higher Lipid Content.**
*C. Hron^{*1}, D. W. Brake², E. J. Blom¹, and B. St-Pierre¹, ¹South Dakota State University, Brookings, ²Department of Animal Science, South Dakota State University, Brookings*
- 440 23 **Identification and Metabolic Characterization of a Novel Strain of *Prevotella ruminicola* Using Starch as Substrate in Anaerobic Batch Cultures.**
V. Bandarupalli^{} and B. St-Pierre, South Dakota State University, Brookings*
- 441 24 **Biochemical and Microbial Biomarkers of Feed Efficiency in Black Angus Steers.**
*B. A. Clemmons^{*1}, C. Martino², M. Embree², E. A. Melchior¹, B. H. Voy³, S. R. Campagna¹, and P. R. Myer¹, ¹University of Tennessee, Knoxville, ²ASCUS Biosciences, San Diego, CA, ³Department of Animal Science, University of Tennessee, Knoxville*
- 442 25 **Effect of Fetal Programming and Finishing Fatty Acid Supplementation on Hypothalamus Messenger RNA Concentration.**
*A. C. Carranza Martin^{*1}, D. N. Coleman², C. C. Furnus¹, and A. E. Relling³, ¹Veterinary Genetic Institute “Ing. Fernando Noel Dulout” National Research Council, La Plata, Argentina, ²Department of Animal Sciences, University of Illinois at Urbana–Champaign, ³Department of Animal Sciences, The Ohio State University, Wooster*
- 443 26 **Effects of Foliar Fungicide and Ensiling Time on Dry Matter and In Vitro Digestibility of Brown Midrib and Floury Corn Silage Varieties.**
*M. Weatherly^{*1}, R. T. Pate¹, L. B. Hedges², S. Mideros², G. M. Fellows³, M. Akins⁴, M. R. Murphy¹, and P. C. Cardoso¹, ¹Department of Animal Sciences, University of Illinois at Urbana–Champaign, ²Department of Crop Sciences, University of Illinois at Urbana–Champaign, ³BASF Corporation, Research Triangle Park, NC, ⁴University of Wisconsin–Madison*
- 444 27 **Effectiveness of Ensiling Wet Brewer’s Grains.**
R. T. Parmenter^{}, D. M. James, H. E. Townsend, and J. W. Rickard, Department of Agriculture, Illinois State University, Normal*

POSTER SESSIONS
WEDNESDAY, MARCH 15, 2018

**POSTER SESSION VII: NONRUMINANT NUTRITION VIII:
INGREDIENTS AND GENERAL**

Chair:
7:30 AM – 8:15 AM
Grand Ballroom Foyer

SCREEN

- 331 2 **Effects of Feeding Increasing Levels of HP 300 on Nursery Pig Performance.**
*A. M. Jones^{*1}, J. C. Woodworth¹, J. M. DeRouchey¹, G. E. Fitzner², M. D. Tokach¹, R. D. Goodband¹, and S. S. Dritz¹, ¹Kansas State University, Manhattan, ²Hamlet Protein, Findlay, OH*
- 332 3 **Evaluating the Effects of Replacing Fish Meal with HP 300 on Nursery Pig Performance.**
A. M. Jones^{}, J. C. Woodworth, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, and S. S. Dritz, Kansas State University, Manhattan*
- 334 5 **Influence of Meal Periodicity and Time-Restricted Feeding under a Limit-Feeding Regime on Sow and Subsequent Litter Performance.**
H. Manu^{}, L. Su Hyup, D. Pangen, and S. K. Baidoo, Southern Research and Outreach Center, University of Minnesota, Waseca*
- 337 8 **Identification of Fecal Metabolites Associated with Fiber Exposure and Growth Performance in Growing–Finishing Pigs through Metabolomic Investigation.**
*J. Guo^{*1}, Q. Hu², R. J. Faris², Y. T. Hung³, Y. Song¹, D. Yao¹, M. Saqui-Salces³, P. E. Urriola³, G. C. Shurson³, and C. Chen^{1,3}, ¹Department of Food Science and Nutrition, University of Minnesota, Saint Paul, ²Cargill Animal Nutrition, Elk River, MN, ³Department of Animal Science, University of Minnesota, Saint Paul*
- 333 4 **Evaluating the Effects of Fish Solubles in Whole Fish Meal on Nursery Pig Performance.**
*A. M. Jones^{*1}, J. C. Woodworth¹, M. D. Tokach¹, S. Herbert², J. Smith², D. Berry², B. D. Goodband¹, J. M. DeRouchey¹, and S. S. Dritz¹, ¹Kansas State University, Manhattan, ²Daybrook Fisheries, New Orleans, LA*
- 336 7 **Effect of Drying Method of Heat Digesta on the Digestibility of Crude Protein and Amino Acids by Pigs.**
L. V. Lagos^{} and H. H. Stein, University of Illinois at Urbana–Champaign*

- 335 6 **Effect of Soybean Meal Supplementation during Gestation on Piglet Quality.**
M. T. Knauer and E. van Heugten, North Carolina State University, Raleigh*
- 330 1 **Comparative Analysis of Bacterial Composition in the Ileum of Weaned Pigs Fed Microbially Enhanced Soybean Meal as a Potential Ingredient Replacement in Conventional Weaning Diets.**
J. L. Ortman, B. St-Pierre, and C. L. Levesque, South Dakota State University, Brookings*

POSTER SESSION VII: PHYSIOLOGY II

Chair:

7:30 AM – 8:15 AM
 Grand Ballroom Foyer

SCREEN

- 383 9 **Effect of Treatment with Human Chorionic Gonadotropin on Day Seven of the Estrous Cycle on Pregnancy Outcomes and Pregnancy Losses in Holstein Dairy Heifers Receiving Artificial Insemination or In Vitro Fertilization Embryo Transfer.**
A. M. Niles, Department of Dairy Science, University of Wisconsin–Madison*
- 384 10 **Effectiveness of an Induced Ovulation Regimen Based on Estrous Activity of Sows.**
*D. S. Dillard¹, W. L. Flowers¹, M. E. Johnston², and S. K. Webel²,
¹North Carolina State University, Raleigh, ²United Animal Health, Sheridan, IN*
- 385 11 **Evidence for Stratification of Rumen Wall Microbial Communities Revealed by 16S Ribosomal RNA–Based Amplicon Sequencing.**
*L. R. Koester*¹, H. K. Allen², D. Bravo³, S. Rasmussen⁴, M. Lyte⁴, and S. Schmitz-Esser⁵,
¹Interdepartmental Microbiology Graduate Program, Iowa State University, Ames, ²USDA National Animal Disease Center, Ames, IA, ³Pancosma, Geneva, Switzerland, ⁴Department of Veterinary Microbiology and Preventive Medicine, Iowa State University, Ames, ⁵Department of Animal Science, Iowa State University, Ames*
- 386 12 **Efficacy of a Second Injection of Prostaglandin F_{2α} in Yearling Beef Heifers following Previous Estrus Synchronization.**
*M. Erickson¹, K. C. Ramsay², and R. N. Funston¹,
¹University of Nebraska West Central Research and Extension Center, North Platte, ²Rex Ranches, Ashby, NE*
- 387 13 **The Effect of Slit Homolog 2 (SLIT2) on Populations of Preantral Follicles in Cultured Cortical Tissue from Pig Ovaries.**
*M. C. Witzke¹, R. A. Cushman², and C. A. Lents²,
¹University of Missouri, Columbia, ²USDA–ARS U.S. Meat Animal Research Center, Clay Center, NE*

- 388 14 **Shearing Effects during Pregnancy on Birthweights and Survivability of Lambs.**
M. A. Vasquez¹, J. B. Taylor², and K. A. Vonnahme³, ¹North Dakota State University, Fargo, ²USDA-ARS Range Sheep Production Efficiency Research, Dubois, ID, ³Department of Animal Sciences, North Dakota State University, Fargo
- 389 15 **Effects of Oral Administration of Lipopolysaccharide on Growth Performance and Immune Response of Nursery Pigs.**
I. Silva Lara¹, S. D. Carter¹, C. V. Cooper¹, P. Aparachita¹, C. Shili¹, J. L. Usry², and K. R. Perryman², ¹Oklahoma State University, Stillwater, ²Micronutrients, Inc., Indianapolis, IN
- 390 16 **Evaluation of Pregnancy Rates of Dairy Heifers Receiving In Vitro Production Embryos with or without Supplemental Progesterone.**
M. M. Steichen and J. E. Larson, Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State*
- 391 17 **Effects of Fetal Size on Gene Expression and Glucose Uptake by Day-Sixty Porcine Umbilical Cord Cells.**
J. M. Morton, T. Rathbun, and D. L. Davis, Kansas State University, Manhattan*
- 392 18 **Metabolic Capacity Comparison of Laying Hen and Broiler Line Isolated Peripheral Blood Mononucleated Cells.**
M. M. Meyer, J. C. Jespersen, and E. A. Bobeck, Iowa State University, Ames*

POSTER SESSION VII: RUMINANT NUTRITION II

Chair:

7:30 AM – 8:15 AM

Grand Ballroom Foyer

SCREEN

- 445 19 **Comparison of Forage and Concentrate Digestibility in Sheep and Cattle.**
G. A. Chishti, P. H. V. Carvalho, A. C. J. Pinto, A. J. Heinrichs, and T. L. Felix, Pennsylvania State University, University Park*
- 446 20 **In Situ Ruminal Disappearance among Corn Grains in Holstein and Angus Steers.**
P. H. V. Carvalho¹, A. C. J. Pinto¹, F. A. S. Silva¹, M. Kirk², and T. L. Felix¹, ¹Pennsylvania State University, University Park, ²Masters Choice, Anna, IL

- 447 21 **Effect of Duration of Limit Feeding on Nitrogen and Phosphorus Metabolism, Growth Performance, and Carcass Characteristics of Holstein × Zebu Finishing Steers.**
*F. A. S. Silva^{*1,2}, S. C. Valadares Filho³, M. V. Pacheco¹, B. C. Silva¹, A. C. B. Menezes¹, N. V. Trópia¹, E. G. Mafort¹, C. W. M. Souza¹, B. C. Lage¹, P. Pucetti¹, and T. L. Felix², ¹Universidade Federal de Viçosa, Viçosa, Brazil, ²Pennsylvania State University, University Park, ³Instituto Nacional de Ciência e Tecnologia – Ciência Animal, Viçosa, Minas Gerais, Brazil*
- 448 22 **Effects of Ractopamine Hydrochloride (Actogain) on Nutrient Digestibility and Nitrogen Excretion of Finishing Steers.**
B. N. Harsh^{}, B. J. Klatt, M. J. Volk, A. C. Dilger, D. D. Boler, and J. C. McCann, University of Illinois at Urbana-Champaign*

POSTER SESSION VII: TEACHING II

Chair:

7:30 AM – 8:15 AM

Grand Ballroom Foyer

SCREEN

- 465 23 **Simulating Public Meetings on Controversial Agricultural Issues Using Cross-Departmental Collaboration.**
*R. A. Nold^{*1}, S. Mastellar², and E. Cortus³, ¹Department of Animal Science, South Dakota State University, Brookings, ²The Ohio State University Agricultural Technical Institute, Wooster, ³Department of Bioproducts and Biosystems Engineering, University of Minnesota, Saint Paul*

DIVIDER

DRAFT

DRAFTER

DIVIDER

MIDWEST SECTION ADSA/ASAS

Committee Assignment

PROGRAM COMMITTEES

Animal Behavior, Housing and Well-being

A. E. DeDecker, Chair
K. Vogel
Y. M. Seddon

Breeding and Genetics

J. E. Decker, Chair
L. L. H. Hanna
J. E. Koltes

Extension – Beef/Small Ruminant

J. S. Held, Chair
B. E. Doran
J. E. Rowntree

Extension – Dairy

K. Mjoun, Chair
B. J. Heins
M. Akins

Extension – Equine

T. L. Douthit, Chair
D. N. Smarsh
K. Anderson

Extension – Swine

R. D. Goodband, Chair
M. J. Rincker
R. W. Fent

Growth, Development, Muscle Biology and Meat Science

D. D. Boler, Chair
J. W. Rickard
D. A. Mohrhauser

Nonruminant Nutrition

C. L. Levesque, Chair
V. G. Perez
W. T. Oliver
O. F. Mendoza

Odor and Nutrient Management

M. J. Brouk, Chair
A. DiCostanzo
M. J. Spiehs

Physiology

C. A. Lents, Chair
T. A. Wilmoth
A. M. Meyer

Ruminant Nutrition

K. E. Hales, Chair
M. E. Drewnoski
T. L. Felix
H. A. Ramirez

Teaching and Undergraduate Education

J. M. Bormann, Chair
J. A. Sterle
A. C. Dilger

SPECIAL COMMITTEES

ADSA Nominations

J. C. Paulson
T. D. Nennich

ASAS Nominations

A. E. Wertz-Lutz
J. K. Apple

Academic Quadrathlon

~~T. J. Safranski~~
~~C. G. Jackson~~
~~C. T. Jobsis~~
~~A. R. Cobb~~
~~K. E. Fike~~
~~J. S. Radcliffe~~
~~R. A. Nold~~
~~A. J. Seykora~~
~~B. D. Whitaker~~
~~F. E. Burkey~~
~~G. W. Onan~~
~~J. N. Tembei~~
~~M. E. Wilson~~
~~L. L. Baranko~~
~~D. W. Rozeboom~~
~~J. S. Ottobre~~

Student Competitions

P. M. Walker

G. M. Hill

AWARD COMMITTEES

Outstanding Young Extension Specialist Award

R. L. Weaber

W. J. Sexten

J. W. Waggoner

M. L. Spangler

F. Cardoso

Outstanding Young Teacher Award

J. M. Bormann

T. A. Strauch

S. A. Wagner

J. M. Kouba

E. A. Karcher

Tim S. Stahly Award

J. S. Monegue

C. A. Jones

J. R. Bergstrom

R. B. Hinson

T. A. Kellner

Outstanding Young Research Award

J. P. Steibel

J. DeRouchey

G. A. Perry

K. A. Vonnahme

S. A. Hansen

Outstanding Early Career Agribusiness Award

M. Wolfe

D. H. Kleinschmit

A. T. Brackenridge

T. W. Loy

A. M. Gaines

PREVIOUS RECIPIENTS OF AWARDS FOR YOUNG ANIMAL SCIENCE LEADERS

OUTSTANDING EXTENSION SPECIALIST AWARD

1971	G. E. Ricketts, University of Illinois at Urbana–Champaign
1972	V. B. Mayrose, Purdue University
1974	M. R. Geasler, Iowa State University
1976	R. J. Vatthauer, University of Wisconsin
1977	R. J. Epley, University of Minnesota
1978	W. L. Singleton, Purdue University
1979	D. E. Schafer, Kansas State University
1980	L. R. Corah, Kansas State University
1981	M. G. Hogberg, Michigan State University
1982	C. W. Spaeth, Kansas State University
1983	L. H. Thompson, University of Illinois at Urbana–Champaign
1984	M. F. Hutjens, University of Illinois at Urbana–Champaign
1985	G. L. Kuhl, Kansas State University
1986	D. D. Simms, Kansas State University
1987	F. K. Brazle, Kansas State University
1988	S. B. Laudert, Kansas State University
1989	M. A. Russell, Purdue University
1990	D. F. Parrett, University of Illinois at Urbana–Champaign
1991	D. B. Faulkner, University of Illinois at Urbana–Champaign
1992	J. L. Nelssen, Kansas State University
1993	A. P. Schinckel, Purdue University
1994	D. A. Funk, University of Wisconsin–Madison
1995	G. C. Shurson, University of Minnesota
1996	R. D. Shaver, University of Wisconsin–Madison
1997	R. D. Goodband, Kansas State University
1998	not given
1999	M. D. Tokach, Kansas State University
2000	J. F. Smith, Kansas State University
2001	W. O. Herring, University of Missouri
2002	M. J. Brouk, Kansas State University
2003	W. J. Powers, Iowa State University
2004	S. J. Moeller, The Ohio State University
2005	K. J. Stalder, Iowa State University
2006	P. M. Fricke, University of Wisconsin
2007	G. C. Lamb, University of Minnesota
2008	J. M. DeRouchey, Kansas State University
2009	P. S. Kuber, The Ohio State University
2010	C. L. Wright, South Dakota State University
2011	G. A. Perry, South Dakota State University
2012	W. J. Sexten, University of Missouri
2013	R. L. Weaber, Kansas State University
2014	G. K. Rentfrow, University of Kentucky
2015	M. L. Spangler, University of Nebraska
2016	C. R. Dahlen, North Dakota State University
2017	F. Cardoso, University of Illinois at Urbana–Champaign
2017	J. E. Decker, University of Missouri

OUTSTANDING RESEARCHER AWARD

1971	D. H. Baker, University of Illinois at Urbana–Champaign
1972	C. E. Allen, University of Minnesota
1974	F. N. Owens, University of Illinois at Urbana–Champaign
1976	W. G. Bergen, Michigan State University
1977	D. E. Bauman, University of Illinois at Urbana–Champaign
1978	G. L. Allee, Kansas State University
1979	S. E. Curtis, University of Illinois at Urbana–Champaign
1980	T. L. Veum, University of Missouri
1981	R. L. Prior, Roman L. Hruska U.S. Meat Animal Research Center
1982	B. D. Schanbacher, Roman L. Hruska U.S. Meat Animal Research Center
1983	H. A. Garverick, University of Missouri
1984	G. C. Fahey, Jr., University of Illinois at Urbana–Champaign
1985	J. J. Ford, Roman L. Hruska U.S. Meat Animal Research Center
1986	C. L. Ferrell, Roman L. Hruska U.S. Meat Animal Research Center
1987	D. Gianola, University of Illinois at Urbana–Champaign
1988	S. P. Ford, Iowa State University
1989	L. L. Berger, University of Illinois at Urbana–Champaign
1990	M. F. Rothschild, Iowa State University
1991	M. F. Smith, University of Missouri
1992	D. L. Harmon, Kansas State University
1993	R. L. Hruska, U.S. Meat Animal Research Center
	M. Koohmaraie, U.S. Meat Animal Research Center
1994	L. G. Sheffield, University of Wisconsin–Madison
1995	J. Odle, University of Illinois at Urbana–Champaign
1996	J. L. Nelssen, Kansas State University
1997	R. S. Prather, University of Missouri
1998	D. Pomp, University of Nebraska
1999	R. W. Johnson, University of Illinois at Urbana–Champaign
2000	M. C. Lucy, University of Missouri
2001	C. K. Tuggle, Iowa State University
2002	M. Morrison, Ohio State University
2003	T. P. L. Smith, USDA, NE
2004	C. W. Ernst, Michigan State University
2005	E. J. Huff-Lonergan, Iowa State University
2006	A. S. Cupp, University of Nebraska
2007	J. C. Matthews, University of Kentucky
2008	J. M. Reecy, Iowa State University
2009	G. E. Erickson, University of Nebraska
2010	J. M. DeRouchey, Kansas State University
2011	K. A. Vonnahme, North Dakota State University
2012	G. A. Perry, South Dakota State University
2013	J. P. Steibel, Michigan State University
2014	L. A. Kuehn, USDA-ARS
2015	N. K. Gabler, Iowa State University
2016	R. N. Dilger, University of Illinois at Urbana–Champaign
2017	S. L. Hansen, Iowa State University

OUTSTANDING TEACHER AWARD

1971	B. G. Harmon, University of Illinois at Urbana–Champaign
1972	R. E. Hunsley, Purdue University
1974	D. H. Gee, South Dakota State University
1976	T. R. Cline, Purdue University
1977	P. J. Cunningham, University of Nebraska
1978	B. D. Moser, University of Nebraska
1979	C. L. Hausler, Southern Illinois University
1980	T. R. Carr, University of Illinois at Urbana–Champaign
1981	M. E. Dikeman, Kansas State University
1982	R. E. Morrow, University of Missouri
1983	D. J. Kesler, University of Illinois at Urbana–Champaign
1984	R. A. Easter, University of Illinois at Urbana–Champaign
1985	D. F. Parrett, University of Illinois at Urbana–Champaign
1986	J. G. Sebranek, Iowa State University
1987	D. R. Brink, University of Nebraska
1988	K. M. Irvin, The Ohio State University
1989	R. P. Lemenager, Purdue University
1990	B. R. Skaar, Iowa State University
1991	D. A. Nichols, Kansas State University
1992	M. A. Russell, Purdue University
1993	D. K. Combs, University of Wisconsin–Madison
1994	L. C. Martin, Kansas State University
1995	M. E. Benson, Michigan State University
1996	B. D. Banks, Michigan State University
1997	H. D. Tyler, Iowa State University
1998	C. R. Youngs, Iowa State University
1999	J. N. Spain, University of Missouri
2000	M. E. Doumit, Michigan State University
2001	S. M. Lonergan, Iowa State University
2002	W. N. Osburn, Michigan State University
2003	S. C. Kelm, University of Wisconsin–River Falls
2004	M. S. Weber Nielsen, Michigan State University
2005	B. D. Nielsen, Michigan State University
2006	B. A. Reiling, University of Nebraska
2007	K. W. Bruns, South Dakota State University
2008	H. N. Zerby, The Ohio State University
2009	B. R. Wiegand, University of Missouri
2010	K. A. Vonnahme, North Dakota State University
2011	S. A. Wagner, North Dakota State University
2012	J. M. Kouba, Kansas State University
2013	J. M. Bormann, Kansas State University
	T. A. Strauch, University of Missouri
2014	T. L. Douthit, Kansas State University
2015	B. D. Whitaker, University of Findlay
2016	B. J. Bradford, Kansas State University
2017	E. Karcher, Purdue University

OUTSTANDING EARLY CAREER AGRIBUSINESS AWARD

1995	P. L. Houghton, Heartland Cattle Co.
1996	J. A. Barmore, Vita Plus Corp.
1997	D. E. Dill, Dairy Strategies
1998	C. M. Luhman, Land O'lakes Research Farm
1999	not Given
2000	D. L. Hancock, Elanco Animal Health
2001	J. M. Lynch, Heartland Cattle Co.
2002	not Given
2003	J. M. Campbell, APC, Inc.
2004	D. M. Webel, United Feeds
2005	T. A. Rathje, Danbred North America
2006	T. E. Sauber, Pioneer, A Dupont Company
2007	M. J. Pettitt, Prairie Swine Centre, LLC, Canada
2008	J. C. Woodworth, Lonza Inc.
2009	not given
2010	D. H. Kleinschmit, Agri-King, Inc.
2010	J. Spencer, JBS United Inc.
2011	A. M. Gaines, The Maschhoffs
2012	C. R. Schwab, National Swine Registry
2013	T. Loy, Adams Land and Cattle, Co.
2014	A. W. Brackenridge, Cargill
2015	M. L. Wolfe, Cargill
2016	C. R. Neill, Pipestone Veterinary Systems
2017	not given

INNOVATION IN DAIRY RESEARCH AWARD

2007	D. B. Carlson, University of Illinois at Urbana–Champaign
2008	A. Bettegowda, Michigan State University
2009	R. A. Natikov, Iowa State University
2010	S. M. Fredin, University of Wisconsin–Madison
2011	D. E. Graugnard, University of Illinois at Urbana–Champaign
2012	not given
2013	J. S. Osorio, University of Illinois at Urbana–Champaign
2014	not given
2015	L. J. Wilsdorf, University of Missouri
2016	M. K. Hayr, Iowa State University
2017	discontinued

NATIONAL PORK BOARD INNOVATION AWARD

- 2006 M. C. Brumm, University of Nebraska*
N. L. Berry, Iowa State University**
T. V. Serenius, Iowa State University**
- 2007 T. J. Safranski, University of Missouri*
J. S. Bates, University of Nebraska**
G. Xu, University of Minnesota**
- 2008 S. A. Cutler, Iowa State University**
G. Xu, University of Minnesota**
- 2009 P. V. Anderson, Iowa State University**
N. J. Boddicker, Iowa State University**
P. J. Lammers, Iowa State University*
- 2010 E. G. Kiarie, University of Manitoba**
M. E. Johnston, The Hanor Company**
M.T. See, North Carolina State University*
- 2011 not given*
A. E. DeDecker, University of Illinois at Urbana–Champaign**
M.-P. L. Montminy, Agriculture and Agri-Food Canada**
- 2012 Y. Liu, University of Illinois at Urbana–Champaign*
- 2013 K. J. Stalder, Iowa State University*
N. J. Boddicker, Iowa State University**
L. J. Johnston, University of Minnesota**
- 2014 B. D. Whitaker, University of Findlay*
N. V. L. Serão, Iowa State University**
- 2015 D. S. Rosero, North Carolina State University**
J. A. Brown, Prairie Swine Centre**
M. Walugembe, Iowa State University*
- 2016 L. L. Schumacher, Kansas State University**
C. E. Zier-Rush, The Hanor Company, Inc.**
A. T. Desaulniers, University of Nebraska-Lincoln*
- 2017 discontinued

*Education

** Research

PAST WINNERS OF INVITATIONAL COMPETITIVE RESEARCH PAPER AWARDS

UNDERGRADUATE STUDENTS - ORAL

1987	R. E. Raw, University of Missouri
1988	J. A. Ragains, University of Missouri
1989	G. L. Ambrose, South Dakota State University
1990	C. N. Kemper, University of Missouri
1991	T. R. Eberle, North Dakota State University
1992	B. J. MacDonald, North Dakota State University
1993	B. L. Dunn, Kansas State University
1994	S. M. Nelson, University of Nebraska
1995	L. J. Trinity, Iowa State University
1996	M. E. Cunningham, Oklahoma State University
1997	C. E. Sorenson, South Dakota State University
1998	J. L. Strickland, University of Nebraska
1999	B. A. DeMontigny, North Dakota State University
2000	K. S. Freise, University of Illinois at Urbana–Champaign
2001	K. R. Nollette, University of Nebraska
2002	B. Meyer, University of Nebraska
2003	A. Harvey, South Dakota State University
2004	L. H. Bach, Michigan State University
2005	A. M. Meyer, Michigan State University
2006	L. D. Holmes, Southern Illinois University R. Schnobrich, University of Minnesota
2007	B. H. Godsey, Kansas State University
2008	B. L. Varnes, Michigan State University
2009	H. L. Frobose, Kansas State University
2010	S. I. Fry, North Dakota State University
2011	R. L. Wangler, Michigan State University
2012	E. A. Nore, North Dakota State University
2013	B. Abramovitz, University of Missouri
2014	K. M. Gourley, Kansas State University B. O. Fleming, Mississippi State University
2015	J. T. Gebhardt, Michigan State University
2016	C. M. Zarek, U. S. Meat Animal Research Center C. M. Vier, Kansas State University
2017	J. M. Kordas, University of Illinois at Urbana–Champaign

UNDERGRADUATE STUDENTS - POSTER

2009	E. I. Ince, University of Wisconsin
2010	D. P. Strassburg, University of Wisconsin
2011	S. J. Morine, Iowa State University
2012	E. J. Cretney, University of Wisconsin
2013	Z. E. Carlson, North Dakota State University
2014	E. G. Groose, Lincoln University
2015	C. D. Evans, Kansas State University
2016	K. M. Jones, Lincoln University
	N. Gross, University of Wisconsin
2017	K. R. Copeland, Michigan State University

GRADUATE STUDENTS - ORAL

1976	D. G. Haught, Iowa State University
1977	L. L. Berger, University of Nebraska
1978	G. F. Collings, Michigan State University
1979	R. D. Boyd, University of Nebraska
1980	D. G. Cieslak, University of Wisconsin
1981	W. F. Pope, University of Nebraska
1982	P. F. Saenger, Purdue University
1983	D. A. Redmer, University of Missouri
1984	W. F. Brown, University of Nebraska
1985	J. H. Brendemuhl, University of Nebraska
1986	P. L. Houghton, Purdue University
1987	M. H. Wilde, The Ohio State University
1988	T. R. Radke, University of Nebraska
1989	K. K. Kreikemeier, Kansas State University
1990	R. A. Nold, Kansas State University
1991	M. D. Tokach, University of Minnesota
1992	G. F. Louis, University of Nebraska
1993	B. T. Larson, University of Missouri
1994	L. H. Anderson, The Ohio State University
1995	M. L. Augenstein, University of Minnesota
1996	D. D. Koehler, University of Minnesota
1997	R. A. Nold, South Dakota State University
1998	K. J. Rozeboom, University of Minnesota
1999	L. A. Averette, North Carolina State University
2000	T. A. Armstrong, North Carolina State University
2001	T. G. McDaniel, University of Nebraska*
	J. H. Hampton, University of Missouri**
2002	K. M. Hargrave, University of Nebraska*
	M. J. Hersom, Oklahoma State University**
2003	J. S. Luther, North Dakota State University*
	R. G. Main, Kansas State University**
2004	R. C. Bott, University of Nebraska*
	M. M. Martinez, Michigan State University**
2005	J. M. Koch, West Virginia University*
	N. D. Fastinger, The Ohio State University**
2006	D. M. Larson, North Dakota State University*
	M. A. Gorocica-Buenfil, The Ohio State University**

-
- 2007 P. E. Urriola, University of Minnesota*
R. N. Dilger, University of Illinois at Urbana–Champaign**
- 2008 J. M. Mapes, Michigan State University*
E. Kiarie, University of Manitoba, Winnipeg, Canada**
- 2009 L. A. Lekatz, North Dakota State University*
D. M. Gorbach, Iowa State University**
- 2010 H. L. Evans, University of Missouri*
R. C. Sulabo, Kansas State University**
- 2011 J. R. Bishop, North Carolina State University*
Y. Zhao, North Carolina State University**
- 2012 J. Flohr, Kansas State University*
J. K. Farney, Kansas State University**
- 2013 K. L. Gillespie, University of Nebraska*
D. B. Burken, University of Nebraska**
- 2014 F. Wu, University of Minnesota*
B. R. Mordhorst, North Dakota State University*
E. K. Harris, University of Minnesota**
H. L. Frobose, Kansas State University**
- 2015 J. G. Wiegert, Virginia Tech*
K. N. Niederecker, University of Missouri*
J. R. Russell, Iowa State University**
- 2016 A. B. Clark, Kansas State University*
W. D. Stuart, Texas Tech University**
- 2017 A. L. Petry, Texas Tech University*
J. T. Gebhardt, Kansas State University**

GRADUATE STUDENTS - POSTER

- 2007 P. L. Nester, North Dakota State University*
N. DiLorenzo, University of Minnesota**
- 2008 N. R. Bork, North Dakota State University*
B. A. Peterson, University of Illinois at Urbana–Champaign**
- 2009 P. J. Gunn, Purdue University*
C. O. Lemley, West Virginia University**
- 2010 N. S. Schmetz, Purdue University*
L. S. Senaratne, University of Nebraska**
- 2011 K. E. Boesche, Purdue University*
P. J. Gunn, Purdue University*
- 2012 M. A. Berg, University of Wisconsin–Madison*
X. J. Li, University of Minnesota**
- 2013 B. M. Bohrer, The Ohio State University*
L. E. Camacho, North Dakota State University**
- 2014 J. L. Peine, North Dakota State University*
J. D. Colpoys, Iowa State University**
- 2015 R. S. Stokes, Iowa State University*
K. F. Coble, Kansas State University**
- 2016 L. L. Thomas, Kansas State University*
J. T. Gebhardt, Kansas State University**
- 2017 B. A. Clemmons, University of Tennessee*
C. M. Vier, Kansas State University**

*M.S. Division

**Ph.D. Division

PAST WINNERS OF UNDERGRADUATE CONTEMPORARY ISSUES COMPETITION

- 1998 M. Bode, University of Missouri
D. Hasekamp, University of Missouri
J. M. Rumph, Michigan State University
M. Schoenfield, University of Minnesota
- 1999 L. Becker, University of Minnesota
- 2000 R. Hawkins, North Dakota State University
- 2001 discontinued

ADSA YOUNG DAIRY SCHOLARS

- 2006 B. J. Bradford, Michigan State University
N. B. Litherland, University of Illinois at Urbana–Champaign
W. Miller, Kansas State University
R. R. Rastani, University of Wisconsin
- 2007 M. M. Abdelqader, South Dakota State University
D. B. Carlson, University of Illinois at Urbana–Champaign
M. Carriquiry, University of Minnesota
M. Geha, University of Nebraska
N. A. Janovick-Guretzky, University of Illinois at Urbana–Champaign
D. H. Kleinschmit, South Dakota State University
E. D. Reid, University of Illinois at Urbana–Champaign
P. J. Ross, Michigan State University
- 2008 A. Bettegowda, Michigan State University
J. M. Bewley, Purdue University
E. L. Karcher, Iowa State University
K. M. Moyes, University of Illinois at Urbana–Champaign
B. W. Pamp, South Dakota State University
M. L. Raeth-Knight, University of Minnesota
- 2009 R. A. Nafikov, Iowa State University
- 2010 B. J. Heins, University of Minnesota
C. O. Lemley, West Virginia University
C. D. Mikolayunas, University of Wisconsin
K. Mjoun, South Dakota State University
- 2011 M. J. Aguerre, University of Wisconsin–Madison
N. M. Bello, Kansas State University
G. L. Golombeski, University of Minnesota
D. E. Graunard, University of Illinois at Urbana–Champaign
H. M. White, Indiana University School of Medicine
- 2012 M. S. Akins, University of Wisconsin
M. S. Osman, Iowa State University
S. D. Ranathunga, South Dakota State University
- 2013 R. G. Cabral, University of New Hampshire
K. J. Herrick, South Dakota State University
J. L. Anderson, South Dakota State University
H. A. Tucker, Purdue University
J. Farney, Kansas State University
D. A. Koltes, Iowa State University

-
- E. Castillo Lopez, University of Nebraska
 J. S. Osorio, University of Illinois at Urbana–Champaign
 2014 K. Yuan, Kansas State University
 P. Plantoni, Michigan State University
 2015 J. P. Boerman, Cargill Animal Nutrition
 T. S. Dennis, Provimi
 L. F. Ferraretto, University of Wisconsin
 J. Laporta, University of Florida
 2016 P. R. F. Adkins, University of Missouri
 K. Boesche, Purdue University
 A. J. Carpenter, Kansas State University
 C. Chapman, University of New Hampshire
 J. P. Martins, Michigan State University
 W. Weich, South Dakota State University
 Z. Zhou, University of Illinois at Urbana–Champaign
 2017 Y. Sun, Michigan State University
 S. Kvodera, Iowa State University
 M. Riboni, University of Illinois at Urbana–Champaign
 S. Moore, University of Wisconsin–Madison
 B. Casperon, Purdue University
 A. Manthey, South Dakota State University

ASAS ANIMAL SCIENCE YOUNG SCHOLARS

- 2010 J. A. Atkins, University of Missouri
 T. M. Che, University of Illinois at Urbana–Champaign
 S. Hooda, University of Alberta
 J. A. Jendza, Purdue University
 J. S. Jennings, South Dakota State University
 V. G. Perez, University of Illinois at Urbana–Champaign
 R. Poletto, Purdue University
 2011 J. R. Bergstrom, Kansas State University
 D. D. Boler, University of Illinois at Urbana–Champaign
 A. E. DeDecker, University of Illinois at Urbana–Champaign
 M. R. P. Elmore, University of Illinois at Urbana–Champaign
 A. M. Meyer, North Dakota State University
 B. W. Neville, North Dakota State University
 C. E. Phillips, University of Minnesota
 P. E. Urriola, Cargill Animal Nutrition
 2012 R. J. Leach, USDA-ARS, US Meat Animal Research Center
 J. M. Kelzer, University of Minnesota
 R. Manjarin, Michigan State University
 M. Song, University of Illinois at Urbana–Champaign
 Y. Liu, University of Illinois at Urbana–Champaign
 I. S. Choi, USDA
 S. F. Cervantes-Pahm, University of Illinois at Urbana–Champaign
 M. J. Weber, Cargill

-
- 2013 Y. Shen, North Carolina State University
L. A. Mack, Purdue University
F. Almeida, University of Illinois at Urbana–Champaign
A. R. Hanson, University of Minnesota
E. A. Bobeck, Iowa State University
A. F. Summers, University of Nebraska
D. W. Brake, Kansas State University
N. J. Boddicker, Iowa State University
- 2014 S. M. Cruzen, Iowa State University
E. K. Harris, University of Minnesota
J. L. Zambito, West Virginia University
M. V. Sanz Fernandez, Iowa State University
L. E. Camacho, North Dakota State University
C. M. Pilcher, Iowa State University
C. B. Paulk, Kansas State University
J. K. Grubbs, Iowa State University
C. L. Daigle, Michigan State University
D. Gonzalez-Pena Fundora, University of Illinois at Urbana–Champaign
- 2015 A. S. Bhatnagar, University of Nebraska–Lincoln
K. F. Coble, Kansas State University
B. W. Daigneault, University of Illinois at Urbana–Champaign
M. A. Erasmus, Michigan State University
O. N. Genther, Iowa State University
N. A. Gutierrez, Iowa State University
L. D. Prezotto, North Dakota State University
O. J. Rojas, University of Illinois at Urbana–Champaign
D. S. Rosero, Tapia, North Carolina State University
A. R. Taylor, South Dakota State University
L. Wang, University of Alberta
A. K. Watson, University of Nebraska–Lincoln
- 2016 L. A. Amundson, University of Wisconsin–Madison
E. K. Arkfeld, University of Illinois at Urbana–Champaign
C. S. Bass, North Dakota State University
J. Colpoys, Iowa State University
J. De Jong, Kansas State University
J. Flohr, Kansas State University
J. McCann, University of Illinois at Urbana–Champaign
K. Sargent, University of Nebraska–Lincoln
J. C. Gonzalez Vega, University of Illinois at Urbana–Champaign
- 2017 B. Bohrer, University of Illinois at Urbana–Champaign
K. Phelps Ronningen, Kansas State University
J. Thomas, University of Missouri
A. Garcia Guerra, University of Wisconsin–Madison
F. Keomanivong, North Dakota State University
C. Anderson, University of Nebraska–Lincoln
T. Kellner, Iowa State University
F. Cabezon, Purdue University

**TIM S. STAHLY OUTSTANDING SWINE NUTRITION
MIDWEST GRADUATE STUDENT AWARD**

2009	T. M. Che, University of Illinois at Urbana–Champaign
2010	R. B. Hinson, University of Missouri
2011	J. R. Bergstrom, Kansas State University
2012	C. A. Jones, Iowa State University
2013	J. S. Monegue, University of Kentucky
2014	N. L. Horn, Purdue University
2015	N. A. Gutierrez, Iowa State University
2016	J. C. Gonzalez Vega, University of Illinois at Urbana–Champaign
2017	T. Kellner, Iowa State University

ASAS MIDWESTERN SECTION PRESIDENTS

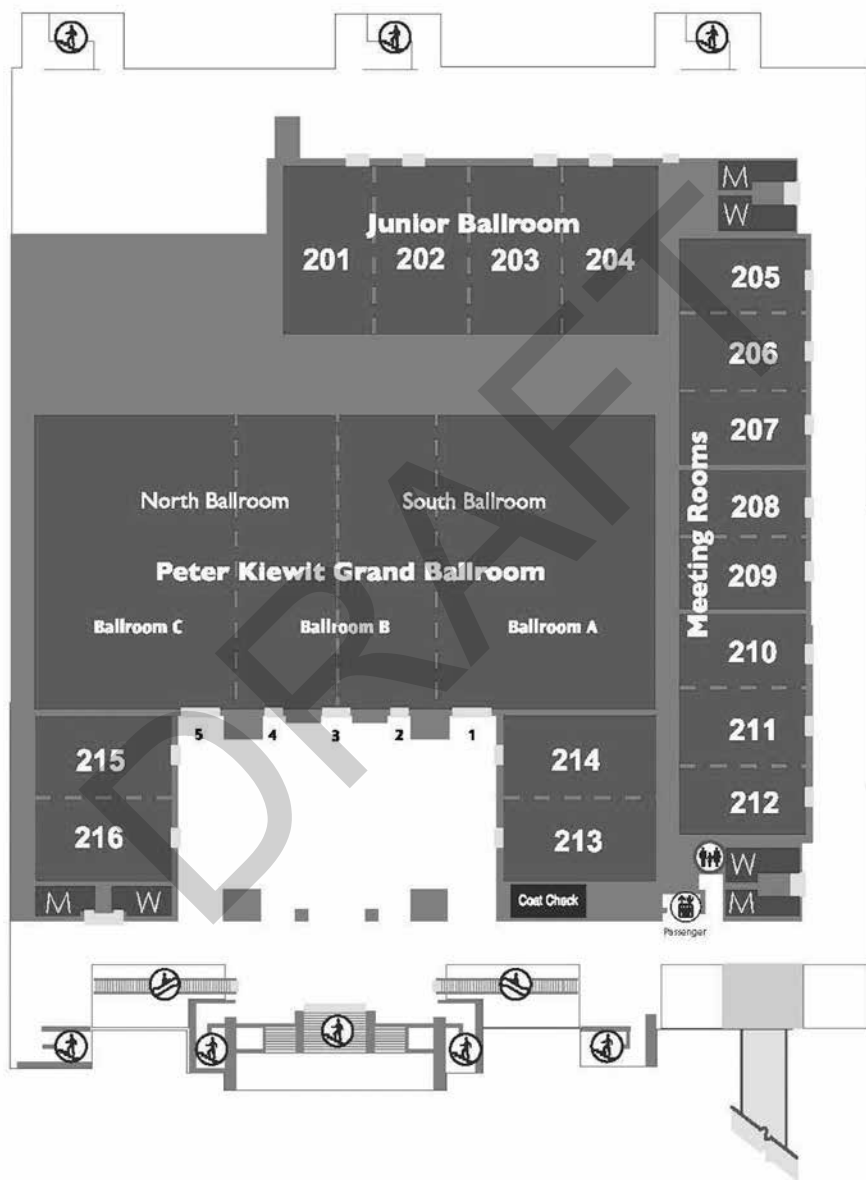
1963	O. G. Bentley, University of Illinois at Urbana–Champaign
1964-65	R. H. Grummer, University of Wisconsin
1966-67	G. R. Johnson, The Ohio State University
1968	R. J. Meade, University of Minnesota
1969	J. A. Hoefler, Michigan State University
1970-71	W. E. Dinusson, North Dakota State University
1972	J. F. Lasley, University of Missouri
1973	U. S. Garrigus, University of Illinois at Urbana–Champaign
1974-75	V. C. Speer, Iowa State University
1976	H. S. Teague, The Ohio State University
1977	R. M. Luther, South Dakota State University
1978	B. N. Day, University of Missouri
1979-80	D. R. Zimmerman, University of Nebraska
1981	A. L. Pope, University of Wisconsin
1982	R. D. Goodrich, University of Minnesota
1983	E. R. Miller, Michigan State University
1984	W. R. Woods, Purdue University
1985	L. R. Corah, Kansas State University
1986	B. D. Moser, University of Missouri
1987	S. E. Curtis, University of Illinois at Urbana–Champaign
1988	R. G. Zimbelman, Upjohn; D. J. Meisinger, Indiana
1989	T. J. Klopfenstein, University of Nebraska
1990	J. R. Romans, South Dakota State University
1991	J. E. Pettigrew, University of Minnesota
1992	C. E. Sasse, Cenex/Land O'Lakes
1993	M. G. Hogberg, Michigan State University
1994	G. L. Allee, University of Missouri
1995	S. K. Webel, Purina Mills
1996	D. L. Meeker, National Pork Producers Council
1997	T. S. Stahly, Iowa State University
1998	R. P. Lemenager, Purdue University

1999	S. P. Ford, Iowa State University
2000	J. R. Males, Oregon State University
2001	M. L. Day, The Ohio State University
2002	R. K. Johnson, University of Nebraska
2003	C. L. Ferrell, USDA, Clay Center
2004	G. C. Shurson, University of Minnesota
2005	A. L. Grant, Purdue University
2006	D. L. Hancock, Elanco Animal Health
2007	R. L. Moser, JBS United, Inc.
2008	M. K. Nielsen, University of Nebraska
2009	M. E. Spurlock, Iowa State University
2010	T. D. Crenshaw, University of Wisconsin
2011	C. W. Ernest, Michigan State University
2012	J. S. Radcliffe, Purdue University
2013	J. F. Patience, Iowa State University
2014	B. R. Wiegand, University of Missouri
2015	A. G. Mathew, Purdue University
2016	J. K. Apple, University of Arkansas
2017	A. Wertz-Lutz, ADM Animal Nutrition

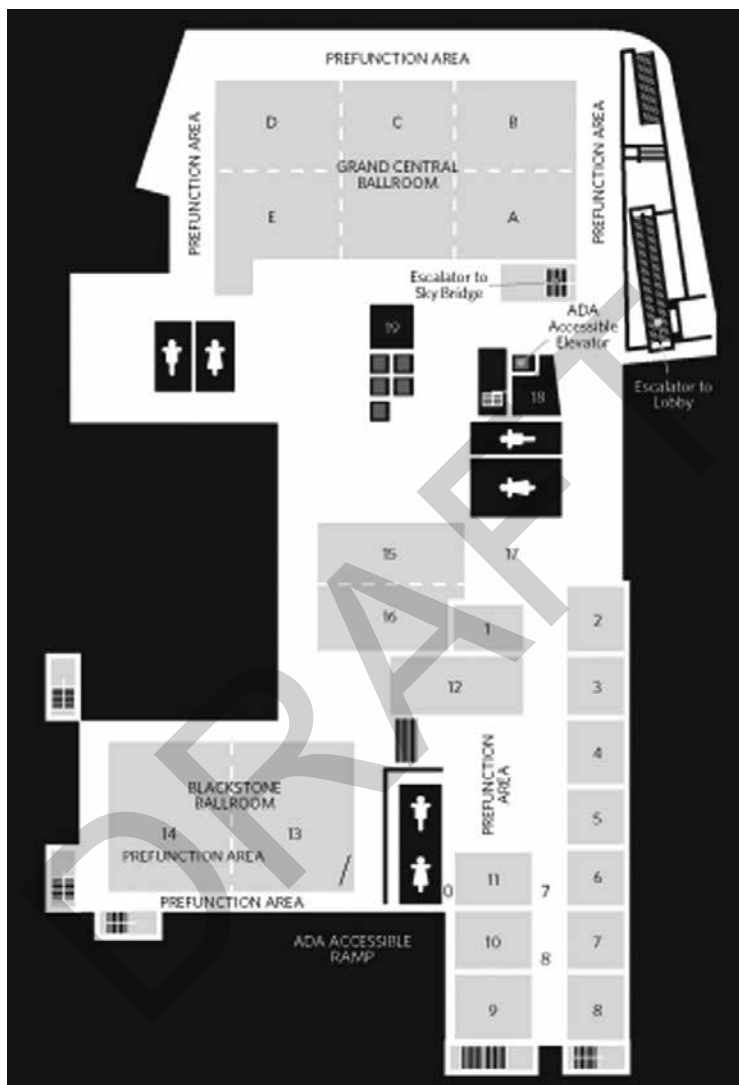
ADSA MIDWEST BRANCH PRESIDENTS

1992	J. F. Keown, University of Nebraska
1993	J. G. Linn, University of Minnesota
1994	D. J. Schingoethe, South Dakota State University
1995	J. L. Morrill, Kansas State University
1996	M. F. Hutjens, University of Illinois at Urbana-Champaign
1997	M. A. Faust, Iowa State University
1998	J. K. Drackley, University of Illinois at Urbana-Champaign
1999	R. D. Shaver, University of Wisconsin
2000	R. J. Grant, University of Nebraska
2001	M. L. Eastridge, The Ohio State University
2002	J. D. Quigley III, APC, Inc.
2003	S. T. Franklin, University of Kentucky
2004	D. K. Combs, University of Wisconsin
2005	L. L. Timms, Iowa State University
2006	P. Hoffman, University of Wisconsin-Madison
2007	M. M. Schutz, Purdue University
2008	J. R. Pursley, Michigan State University
2009	C. M. Luhman, Long View Animal Nutrition
2010	H. Chester-Jones, University of Minnesota
2011	D. P. Casper, Agri-King, Inc.
2012	K. F. Kalscheur, South Dakota State University
2013	L. H. Baumgard, Iowa State University
2014	M. J. Brouk, Kansas State University
2015	D. B. Carlson, Milk Products LLC
2016	T. D. Nennich, Famo Feeds
2017	P. Cardoso, University of Illinois at Urbana-Champaign

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| 6 Paxton | 14 Blackstone Ballroom B |
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ahmadspersiancuisine.com

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(402) 408-5566

bluesushisakegrill.com

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bricksandmortarbarandbistro.com

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Phone: (402) 991-1188

jsonjackson.com

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(402) 991-5637

jacksonstreettavern.com

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labuvetteomaha.com

NICOLA'S ITALIAN WINE & FAIRE

(0.7 miles from CenturyLink)

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(402) 345-8466

nicolasintheoldmarket.com

SPAGHETTI WORKS - OLD MARKET

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1105 Howard St

(402) 422-0770

omaha.spagworks.com

STOKES GRILL & BAR – DOWNTOWN

(0.8 miles from CenturyLink)
1122 Howard St
(402) 408-9000
restaurantsinc.net/stokes/

THE BOILER ROOM RESTAURANT

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(402) 916-9274
theboilerroomrestaurant.com

TRINI'S MEXICAN RESTAURANT

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(402) 346-8400
trinisoldmarket.com

TWISTED FORK GRILL AND SALOON

(0.8 miles from CenturyLink)
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(402) 932-9600
restaurantsinc.net/twistedfork/

UPSTREAM BREWING CO, OLD MARKET

(0.8 miles from CenturyLink)
514 S 11th St
(402) 344-0200
upstreambrewing.com

V. MERTZ

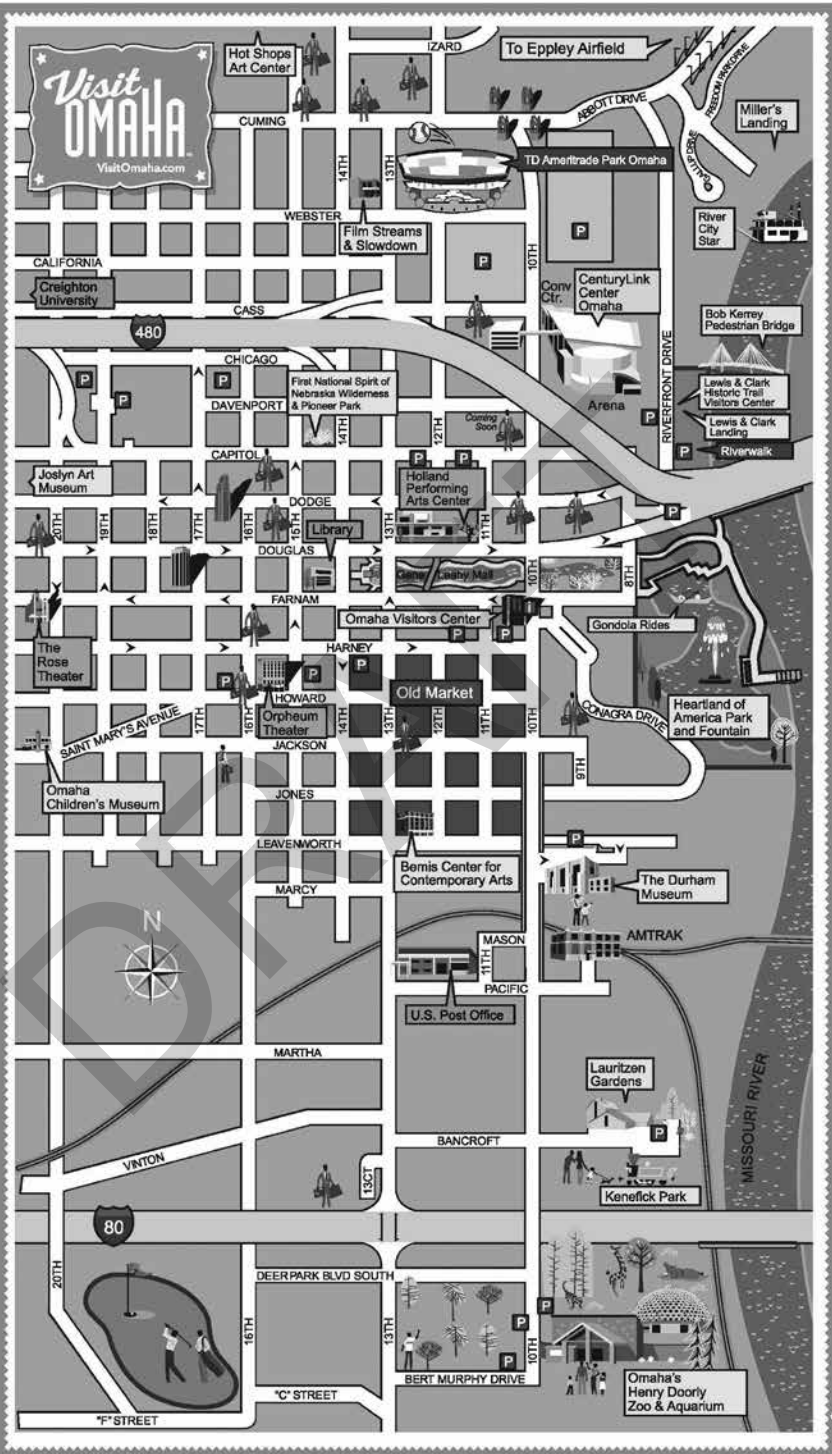
(0.8 miles from CenturyLink)
1022 Howard St, In the Passageway
(402) 345-8980
vmertz.com

JAMS OLD MARKET

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1101 Harney St
(402) 614-9333
jamseats.com

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902 Dodge St
(402) 315-4301
localbeer.co/downtown



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